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Cleanings in Bee Culture

VOL. XLII. SEPT. 1, 1914, NO. 17.

POLLYANNA THE GLAD BOOK

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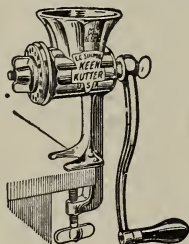
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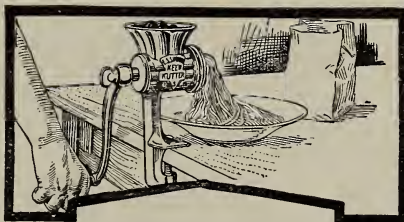
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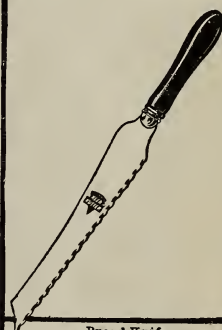
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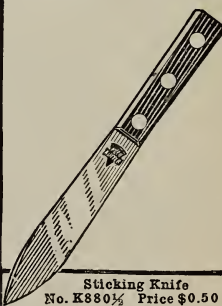
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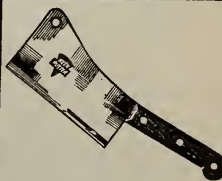
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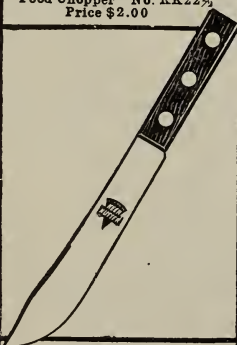
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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES Adopted at Cincinnati, Feb. 13, 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than 12 ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means than the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—No. 1 and fancy new white comb honey is quoted at 16 to 17; fancy white extracted, 11, 60-lb. cans. Beeswax, 30.

Boston, Aug. 22.

BLAKE-LEE Co.

LIVERPOOL.—Chilian honey market is very dull, with only retail sales at the late rates. Chilian beeswax market is steady; 6 bags sold at \$41.88 per cwt.; 32 bags arrived per "Colbert."

Liverpool, Aug. 6.

TAYLOR & Co.

Honey reports continued on page 5.

Shipping-Cases....Special Deal

SINGLE-DECK, 24-section, 2-inch glass shipping-cases; special price. Write us.

Ship us your old comb and cappings. It means more wax and more money for you.

We buy honey for cash. Write us what you have to sell.

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During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

64-page Catalog

Our 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans, too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

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Gleanings in Bee Culture

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BUFFALO.—There is nothing to report in our honey market; could sell a little white comb if we had it, but none here; considerable mixed comb, but no demand for it; plenty of extracted, but no demand; some white could be sold by making low price. We expect now to get soon some new extracted honey. It will sell well at good prices. Nothing to report on new crop.

Buffalo, N. Y., Aug. 10. W. C. TOWNSEND.

ALBANY.—We have an increasing demand for honey now, and will have for several months. Report of crop is light in this vicinity. We quote best white comb, 17; good, 16; mixed, 15. Extracted dull and price nominal. We quote some carried over, and with war interfering with export demand I trust the comb-honey men will have the best market this season.

Albany, Aug. 22. H. R. WRIGHT.

CINCINNATI.—The demand for honey is very light. Some new shipments of comb and extracted honey are arriving, but it is an effort to make sales. For choice and No. 1 comb honey in no-drip shipping-cases we are getting \$3.75 to \$4.00 per case, and 8 to 9 cts. per lb. for white extracted honey, and 5 to 7 for amber extracted in barrels, according to quantity and quality. Beeswax brings 30 cts. for choice bright yellow free from dirt.

Cincinnati, Aug. 13. THE FRED W. MUTH CO.

CHICAGO.—Comb honey of the new crop is now on the market, and the best grades of white sell at 15 cts. per lb. A fancy lot of white clover brought 16; amber grades range in price 1 to 5 cts. less, according to kind, condition, and flavor. Extracted, white, is 7 to 9, amber, 6 to 8 in five-gallon package, according to the kind, flavor, and quality. White and alsike bring the highest price. Beeswax, 35.

Chicago, Aug. 18. R. A. BURNETT & Co.

KANSAS CITY.—New comb honey is making its appearance in our market. Demand is still light, on account of the hot weather. Receipts of extracted are fairly large and the demand is exceedingly light. We quote No. 1-white comb, 24 sections to the case, at \$3.25 to \$3.35; No. 2 ditto, \$3.00; No. 1 amber, \$3.00 to \$3.25; No. 2 amber, \$2.50 to \$2.75; white extracted, 7½ to 8; amber, 7 to 7½; dark, 5. Beeswax brings, No. 1, 28; No. 2, 25.

Kansas City, Aug. 13. C. C. CLEMONS PRODUCE CO.

ST. LOUIS.—There is no change in our honey market since our last quotations, and trade is still very light on this article. Not much new comb honey has so far come into this market. A great deal of extracted honey in barrels and cases has arrived within the past three weeks. Our market is still quoting extracted bright amber in barrels from 5 to 5½; in cans, 5½ to 6; dark, ½ to 1 ct. less; fancy white clover from 15 to 16 cts. per comb; light amber, 13 to 14, broken and leaky, 7 to 9; by the case, fancy white clover, \$3.25 to \$3.50; light amber, \$2.50 to \$3.00; dark and inferior, \$2.00. Beeswax quoted prime at 32; impure and inferior, less.

St. Louis, Mo., Aug. 21. R. HARTMANN PRODUCE CO.

NEW YORK.—It is too early to say now what the new crop of comb honey in the East will amount to; and while all reports point to a short yield, in New York in particular, the far West will have more than enough to offset the shortage in the East. There are no prices established yet. The market on extracted is decidedly dull, and buyers are afraid to contract for large quantities, fearing that the European war will have a tendency to lower prices, which we believe is true, as all the West Indian honey, Cuban in particular, 90 per cent of which has heretofore been sent to Europe, will naturally be dumped on the United States market, there being no shipping facilities to Europe. The market being in such an unsettled condition, we cannot ourselves name any prices at present.

New York, Aug. 21. HILDRETH & SEGELKEN.

ZANESVILLE.—There seems to be a slightly better demand for honey, though the market is still abnormally inactive. But little new honey is arriving as yet. So light is the crop locally that but little will find its way to the large centers. We quote, as heretofore, best grades of white-clover comb at 16½ to 17½ in a jobbing way; about ½ to 2 cts. higher in one or two case lots. Best white extracted in 60-lb. cans, 9 to 10½. Producers are offered for beeswax 31 to 32 cash, 33 to 34 in exchange for bee-supplies. Zanesville, Aug. 25. E. W. PEIRCE.

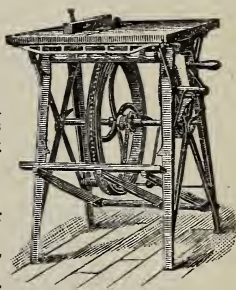
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154 Ave. Emile Zola, Paris 15 (France)

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No difference which—or what—you'll find it in the PEIRCE Catalog. Whatever has been the result of the season's work, there is doubtless something in the way of supplies of which you are in need, be it a necessity or merely a convenience. A careful perusal of this catalog will be interesting, suggestive, and profitable, as it contains a great deal of valuable information, and places at your disposal "ROOT QUALITY, PEIRCE SERVICE," and consequent satisfaction.

HONEY

We are in the market for honey, particularly white-clover comb. Write, stating quantity, how packed, and price wanted.

If your own crop is light or has been sold, and you are needing honey for your trade, your wants can here be supplied at reasonable prices.

The correspondence of wholesale and retail dealers is solicited.

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- 2 THE BEEKEEPER AND FRUIT-GROWER. A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how beekeeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honeybees in close proximity to their blossoming fruit. Free.
- 4 CATALOG OF BEEKEEPERS' SUPPLIES. Our complete catalog will be mailed free to any address on request.
- 7 SPRING MANAGEMENT OF BEES. A 14-page booklet detailing the experiences of some successful beekeepers, and giving instructions on this oftentimes perplexing matter. Price 10 cents.
- 8 HABITS OF THE HONEYBEE. By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cents.
- 9 HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 THE A B C OF BEE CULTURE. A complete encyclopedia of bees, of 712 pages, fully illustrated, \$2.00 postpaid; half leather, \$2.75.
- 11 GLEANINGS IN BEE CULTURE. A 64-page illustrated semi-monthly magazine—the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cents.
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Gleanings in Bee Culture

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NO. 17

EDITORIALS

OUR California correspondent, Mr. P. C. Chadwick, writes that, owing to his being away from home on a visit, he was unable to get copy to us for his department in this issue.

Late Rains

FREQUENT rains are reported in various parts of the country. While the drouth is not broken by any means, as a result of the hot spell of weather, these rains are starting out fall pasturage everywhere, with the result that the bees are breeding well and gathering more honey than they consume in breeding. This ought to put the bees in nice shape for winter. In some cases where the sections were not completely finished on the hive they are now being completed with heartsease.

A State Association in Louisiana

A NEW State Association has recently been organized in Louisiana. Some twenty beekeepers met in Shreveport, July 11, and organized what is to be known as the Louisiana State Beekeepers' Association. This organization is not yet affiliated with the National Association; but as soon as sufficient members have joined, the intention is to affiliate with that body, and the officers for the first year are as follows:

President, C. F. Pease; Vice-president, W. S. Carney; Secretary-treasurer, L. T. Rogers, whose temporary address is box 361, Shreveport, La.

The next meeting is to be held during the State fair.

Bee Inspection in Idaho

FROM a newspaper clipping that we have received we learn that C. K. Macey, who is State bee inspector as well as horticultural inspector for Idaho, in his annual report filed with the Governor, gives the number of colonies as inspected in 1913 as 18,496; 1455 colonies were found to be diseased, or were kept in box hives, in violation of the law. The number of colonies treated was

817; number destroyed, 638. In other words, a little less than 8 per cent of colonies examined were found in bad condition, and it was necessary to destroy only a little over 3 per cent of total number inspected.

Mr. Macey estimates that the total production of honey for the year was a little over 50 earloads, or 1,500,000 pounds, having a value of about \$150,000. Of this amount about 35 earloads were shipped out of the State.

The Smoke Method of Introducing Not Always Reliable

WHILE we have had fairly good success in introducing queens by the use of smoke as directed by Arthur C. Miller, not a few of our subscribers, apparently, have not made a success of it, and are going back to the cage method. One thing we have learned is that one must follow directions exactly in order to insure success; and even where one does the best he knows, if it is the first time he tries it, he will often meet with failure. Apparently it is a method that cannot always be acquired wholly from directions, but must be learned by practical experience. Oversmoking or undersmoking will lead to failure. The smoker must be right and the colony must be right.

We had thought that we would recommend the smoke method in place of the cage plan of introducing with all queens sent out; but apparently we would better stick to the old plan for a while yet.

Honey-crop Conditions and Prices

THE situation is about the same as reported in our previous issue—namely, that white-clover has been a comparatively short crop. The supply of alfalfa and mountain sage appears to be good. Late rains have stimulated fall flows in many localities. The condition of the market is in a state of uncertainty; and no one can positively predict what will be the final effect of the European war in causing an advance in the price of sugar and a tightening of the mon-

ey market. At the present writing, Uncle Sam is distributing currency all over the country through the Paine-Aldrich act.

Taking a general view, it is probable that prices will not decline on table honey; but unless an outlet can be found for other honeys for manufacturing purposes there may be a decline in these goods. Europe, as has been stated elsewhere, is a very large consumer of honey from the West Indies and some of the South American republics; but as long as the war lasts, and for some time after, these honeys will have to find other markets, and naturally they will come here. It is that situation which is disturbing prices on our cheaper honeys.

Bees in a Candy-factory

ONE of the occasional objections raised to keeping bees within the limits of a city is that, during a dearth of honey, they may get to robbing exposed sweets. A case of this kind has just come to our notice. A candy-factory on the fifth floor of a building in Muskogee, Okla., does not use screens on the windows on account of being so high that flies are never seen. The latter part of July (when no honey from natural sources was coming in), bees, attracted by the exposed syrup, began coming in large numbers into the open windows, making the work of the employees engaged in the manufacture of the candy somewhat strenuous, to say the least.

This is not the first time that this sort of thing has happened. If screens are not needed to keep out the flies, it would seem as though any beekeepers living in the city and keeping bees within the city should go more than half way toward helping to defray the expense of putting in screens. We say this, realizing that there would probably be just as many bees around the unscreened windows, even if there were no apiaries located within the city limits. Bees are not observers of city ordinances; but, nevertheless, to avoid friction it would seem that any beekeeper interested should adopt the golden-rule principle.

The Effect of the War on the Price of West India and South American Honeys, and Other Domestic Honeys for Manufacturing Purposes

PERHAPS it may not be known, but nevertheless it is true, that Europe uses (or did use up to the war) immense quantities of honey for pastry and baking purposes. In fact, the Europeans among the peasantry class have for centuries back been using honey for cooking where we naturally use

sugar. Now that the European market has been entirely cut off for these goods, especially those from South America and the West Indies, they are flowing into the markets of the United States. They must go somewhere, and at prices that will make them move. We already have ample evidence that they are being offered at very low prices—so low, indeed, that they are depressing the price of domestic cheap or dark honey. But the general advance in sugar may be the means of finding other outlets for these honeys that have hitherto been going to Europe.

There is no great loss without some small gain. Perhaps it will be so in this case. If the high price of sugar shall be the means of forcing some of these cheaper honeys into avenues of consumption hitherto never dreamed of, it will in the long run be a blessing. We shall hope so.

EFFECT OF THE WAR ON PRICE OF WAX.

In the same way, large quantities of wax from South America and the West Indies that formerly poured into the European markets, are coming to America. Some of these waxes are not suitable for making comb foundation, because they do not quite come up to the United States standard set for pure domestic beeswax. Again, some of them are too dark; but it is apparent that they can be used in the other arts, where ordinary domestic beeswax is employed. The general effect of these importations of cheap wax has caused a decline in the price of beeswax. See Special Notices elsewhere.

New Co-operative Association of Beekeepers

A NEW organization has just been effected which is to be known as the Tri-State Honey Exchange. This is a co-operative association of beekeepers organized to assist honey-producers in Minnesota, Wisconsin, and Iowa, to market their honey and obtain the highest possible prices, the profits of the association to go to the producers. The membership of this organization, which has been endorsed by the Minnesota Beekeepers' Association, is one dollar a year, and this amount will be deducted from the first shipment of honey sent in. Beekeepers are also invited to purchase one share of stock at \$10.00 per share. Honey will be bought from beekeepers at any time, prices quoted on application. Payment will be made within thirty days, and all profits will be distributed according to the bylaws. The place of business is located in the Market Bank Building, Minneapolis, with L. M. Bussey as manager.

Dr. L. D. Leonard, secretary and treasurer of the Minnesota Beekeepers' Association, writes that the organizers *offer as a suggestion* that such co-operative exchanges be organized in different sections of the country, say in the different parts producing the same kind of honey, and that the National Beekeepers' Association become a sort of clearing-house for the exchanges of the whole country in the distribution of honey.

Is Sugar too Expensive to Feed? Can Cheap Honey be Used Safely as a Substitute?

THE price of cane sugar has gone to a point now where a beekeeper will hesitate to feed up his bees with sugar syrup this fall providing he can get a good grade of cheap honey instead; but on account of the danger of transmitting bee disease, if he does not know its source he should mix in with it an equal volume of water, and boil it for thirty minutes, care being taken not to burn it, for a little burning will cause dysentery in all bees fed before spring.

Dr. White, of the Bureau of Entomology, has determined that ten minutes' boiling is sufficient to kill the germs; but we advise thirty minutes, because the average beekeeper may not do as good a job of boiling in ten minutes as Dr. White could do.

There will be a question whether this honey, even when carefully heated, will not cause some trouble before spring. It is almost a case of being "between the Devil and the deep sea." While sugar syrup is undoubtedly wholesome and safe, it is expensive. Boiled honey may cause dysentery, and, if not properly boiled, disease. In any event, to be on the safe side the average beekeeper would do well to move his yards of bees to localities where they can get fall pasturage, without any feeding of expensive sugar or bad honey, the same as we are doing in our local swamps around Medina.

The Bee in Advertising

AN elegant little advertising folder, "Lessons in Saving," issued by the First Savings Bank and Trust Company, of Albuquerque, N. M., has just come into our hands. In many ways it is the most unique of any thing along this line that we have seen. It is beautifully decorated and beautifully printed; but the charming feature is that each page contains an illustration of saving, drawn from nature. In verse it is shown that the woodpecker, the dormouse, the beaver, the squirrel, chipmunk, etc., do their best to save and store away for the

cold season the quantity of food sufficient to last until warm weather comes again. As would be expected, the bee and the ant are also included. The particular page in which beekeepers would be interested shows a hive under the shade of a tree with clover in the foreground, and the bees themselves busily at work. The poem on this page is as follows:

Now you know the brisk bee, starting off in the morn,

Will go flying afar o'er the field

Where he gorges himself in a business-like style

On the sweets that the clover-heads yield.

Then back home he flies, just as straight as a die,

Stores his honey away in the hive,

Where he keeps it, all sweet, pure and dainty to eat
When the cold days of winter arrive.

All this prepares the way for the final statement on the last page, "Save the pennies and the dollars will take care of themselves."

Hay from the Second Year's Growth of Sweet Clover

WE have often said that beekeepers might do much toward educating the farmers in their vicinity to the value of sweet clover by getting together facts from noted authorities and having them published in local papers. If all the world could know what a part of the world knows about sweet clover, farmers would not be spending good money trying to eradicate what they consider a noxious weed.

One of our contributors, Mr. Henry Stewart, of Prophetstown, Ill., has an especially fine article in his local paper the *Prophetstown Echo*, in the issue for October 2, 1913. We have not room to quote all of it, but are giving two paragraphs herewith.

For years I have been an enthusiast on fertilizer and pasture value of sweet clover, also on the first year's growth from the seed for hay. This first year's growth is fine, and resembles alfalfa very closely, but the second year's growth is very rank and sappy, and hay from this has always looked to me to be a pretty hard proposition to master. But while at the Whiteside County field meeting I had a conversation with Frank Coverdale, of Clinton County, Iowa. Mr. Coverdale is an extensive raiser of sweet clover, having from 100 to 200 acres in sweet clover each year, and he assured me that he now has his barns full of the second year's growth of sweet clover, and he says the hard proposition ceases when you know how.

If going at it in the ordinary way of making hay, failure is inevitable. If allowed to cure in the swath, the leaves would all drop off long before the stems would be dry; and if cut short, as is ordinary grass, a large per cent of the plants would either be killed or set back in their growth. He cuts his first cutting the last of May. He raises his mower to cut about as high as possible. Sweet clover is peculiar. New shoots do not start from the crown, but each stub cut off forms a new crown of shoots; and if these stubs are cut too short they are liable not to start at all. This hay is just allowed to wilt nicely when it is put into small diameter (but high) cocks, and allowed to cure in the field for several days. He

says these wilted stems will hang down and shed water like slough grass, and rain will do it but little damage.

Should the Price of Honey Advance in Proportion to the Price of Sugar? Honey for Can- ning Purposes

SUGAR has now gone up to nearly 10 cents a pound—just double the figures of two months ago. While the price of honey might be adversely affected, on account of the war in Europe, since it is a luxury and not a necessity (on the principle that the price of luxuries declines as the price of necessities climbs during war times) yet it is very clear that if sugar goes up to 10 cents a pound our housewives during the canning season will look for a substitute, and there is no substitute for sugar equal to honey. Our own experience has shown that honey makes the best kind of preservative for fruits. Honey for manufacturing purposes such as dark and fall honeys as well as many southern honeys will be cheap. (See editorial on the effect of the war on cheap honeys.) If sugar is held at 10 cents, it will mean that honey will be used for every purpose in the household, such as sweetening coffee, making cakes and cookies, etc.

During these troublous times the housewife is going to figure close; and if she can get honey cheaper than sugar she will use it in preference. The probabilities are that the war will have the effect of advancing the price of honey in sympathy with that of sugar.

We would suggest that producers, especially those who have extracted honey for sale, announce through their local papers that honey is an excellent substitute for sugar for canning purposes, and that it will take the place of sugar in general cooking. Now is the time for beekeepers to get busy and push the sale of honey in avenues formerly supplied by granulated sugar. The point to make is that honey, a natural preservative, is, in most cases, not only a more healthful sweet than cane sugar or New Orleans molasses, but one that makes the cake or canned fruit, as the case may be, more appetizing. Strawberries and peaches, especially when put up with honey, retain their natural color longer and acquire a richer flavor approaching more nearly the flavor of the fruit when fresh. One must eat strawberries canned with honey to appreciate the richer and more natural taste and the brilliant red color instead of the usual pale brown. Beekeepers themselves should practice what they preach in this respect in order to be able to preach more convincingly.

Another effect of the advance of cane sugar will be an advance possibly on table honeys. Whenever these are cheaper than sugar they will be taken on account of their flavor.

On Whom does the Responsibility of Misbranding Rest?

In a recent editorial we gave it as our opinion that the penalty for misbranding comb honey so far as the net-weight law is concerned would rest on the producer. It is more accurate to say that such penalties will be put on the shipper or owner who ships the goods out of the State. In some cases he may be the producer. In other cases he may be only the middleman. Under a strict construction of the law the producer does not necessarily have to label or mark the weight on each individual section of comb honey if he sells to some middleman or dealer within his own State. Mr. Middleman in most cases is going to require* the producer to mark all his comb honey; but neither he nor any one else can ship out of the State unless every section is marked in accordance with the law; so if he is going to ship into another State he will have to do the marking, and make the producer pay for it, by deducting the cost in the final account of sales. We know, as well as we know any thing, that Mr. Middleman and Mr. Producer will in some cases have a wrangle over the proposition. Here will be also a chance for overcharge for doing the work. The middleman can make out a bill for so much time in marking the weight on each section; and if he claims in addition that the honey was so poorly graded that he had to pay for an extra amount of labor on the job, whether the account is true or not, the producer will have to pay for it. So we advise every producer to mark his own honey, even if he sells in his own State. Then in the matter of adjustment he can pay according to his work.

This net-weight law is going to cause some wrangles and confusion; but if the comb honey is all marked according to its appropriate weight (and that means every section), both middleman and producer have an exact basis for their deal; and if legal proceedings have to be resorted to for collection, the producer can certify to his exact weights on the basis of his markings on his sections. As the court would have reasonable assurance that he would not dare to misbrand, it would give him an award accordingly.

* He can not do this unless he so stipulates before purchasing the honey.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

IN FEEDING as recommended, p. 570, you will find cork chips excellent in place of straw or dry grass.

IN JUNE I found five cases of European foul brood. In one case the queen was caged ten days, in another eight days, and six days in each of the other cases. The treatment was effectual, and I've seen no European foul brood since.

BUMBLE-BEES are working on my alfalfa, but no hive-bees. Can it be that east of the Mississippi the flower-tubes grow too deep for the hive-bees? [Possibly; but, if we remember correctly, the alfalfa-blossoms do not have long corolla-tubes, either east or west.—Ed.]

"IT IS A FACT that the public prefers honey with color to the whitest, for they are better acquainted with it," p. 575. "Locality" again, friend Chadwick; here they're acquainted with light honey, and none can be too white for the market. [In some localities in New York, some people consider no honey quite the equal of buckwheat; and as buckwheat honey is very dark in color, the color itself cuts no figure with them.—Ed.]

EVER think what a little thing makes the difference between a queen and a worker? Just two days' feeding. For the first three days the young worker gets the same food as its royal sister; then it is "weaned" and gets coarser food for the remaining two days, while the better bill of fare is continued to the royal youngster. And what a difference that two days' feeding does make! The young queen develops in three-fourths of the time taken by the worker, and, paradoxically, its span of life is twenty times as long.

THE flow was as good this year as last, but tired out sooner. If I get a third as much as last year I'll not whine. [If you had been further south you would have secured less than one-third, and if you had been located further north you might have secured as good a crop as you did the year before. The year 1913 was a record-breaking one, during which you produced 266 lbs. of comb honey per colony from 73 colonies, or a whole carload of comb honey. If you secured one-third of that amount it would be 89 lbs. per colony. That is good enough almost any year.—Ed.]

T. K. MASSIE, you ask, p. 627, why not adopt a section that holds a pound net honey. Surely one of your experience must know that bees have not the greatest respect for our desire for uniformity. One colony

will put more honey in a section than another; the same colony may fill it fuller one year than another, or at one time of the season than another in the same year; and there may be a difference of two ounces or more between the heaviest and lightest sections, although all are well finished and sealed. I'm afraid that the finding of a section of such size that it will always hold just a pound of honey when finished will always remain a dream.

ACCORDING to p. 616, packing sections in cartons will "avoid the labor of marking each individual section." I suppose that means to have different lots of cartons with weight printed on them. Not knowing in advance what proportion of each kind we'd want, that would involve having a good many extra cartons on hand. In either case the weighing must be done; and doesn't it take less time to stamp a section than to straighten the carton and put the section in it. [If comb honey is graded into three grades, as it should be, there will be only three classes of cartons to be used. If the exact weight of every section is marked, the carton proposition will be impossible.—Ed.]

IT LOOKS, p. 618, as if we are given the choice to have three rubber stamps to stamp the weight on our sections or to write in the exact weight. Why not have a set of stamps varying by $\frac{1}{2}$ ounce—10, $10\frac{1}{2}$, 11, $11\frac{1}{2}$, etc.? If we have 6 sections, weighing respectively 10, $10\frac{1}{2}$, 11, $11\frac{1}{2}$, 12, $12\frac{1}{2}$ ounces, we shall lose 2 ounces by having the three stamps marking 10, 11, and $12\frac{1}{2}$ ounces instead of the full set. In a shipment of 5000 sections that would make a loss of more than 100 pounds. Where can we get stamps? and at what price? [Doctor, if you tried to mark the exact net weight on every section you would have a job on your hands. You will find that you will get the rubber stamps mixed up, and make mistakes. The Colorado plan of marking the minimum net weight, and dividing all the sections into three classes, or grades, necessitates the use of only three stamps, and, in the judgment of the great majority of producers so far as expressed, it is the only practical plan to pursue. To save the loss of all sections weighing more than the minimum specified, the whole caseful of sections should be sold by weight less the tare of sections and shipping-case. We do not know a producer in the country who is thinking of undertaking the endless job of marking the individual net weight on every section. For rubber stamps, see adv. section.—Ed.]

J. L. Byer,

NOTES FROM CANADA

Mt. Joy, Ont.

This is the first time that feeding in July or August has been necessary in our locality, since I can remember. Owing to the abundant stores our own bees had this spring, *we* were saved from doing this; but many who bought pound packages of bees in May found some small colonies starved in July before noticing their desperate condition.

* * *

Glancing over the mass of reports in Aug. 1st GLEANINGS, one cannot help coming to the conclusion that, taking all the honey-producing sections of the United States and Canada in general, the crop as a whole is very light. So far as Ontario is concerned, quite a lot of honey was carried over from last year; and while we may reasonably expect firm prices this year, it is not at all likely prices will be much if any above opening prices of last season. Of course, should the present great war continue long (which God forbid), it is hard to say what might happen, as all the staples have already taken quite an advance.

* * *

European foul brood, or black brood, as many of us prefer to call it, has made its appearance in Victoria Co., in the vicinity of Lindsay, Woodville, and other places in that vicinity. It looks as though, sooner or later, no place in Ontario would have a monopoly of this disease. Universal requeening with good Italian stock seems to be about the only remedy for it. Whether Carniolans are as immune as Italians is a question not yet settled, apparently, although some beekeepers in affected places in New York and Pennsylvania have reported to me that they found the Carniolans superior to the Italians in this respect.

* * *

Speaking of outdoor feeding (page 570, Aug. 1) A. J. Knox, of Orono, Ont., tells me that, although there was a great dearth of nectar at time of feeding, he had to start the bees with a little honey before they would touch the syrup made on a one-to-ten basis. He reports no robbing nor fighting when feed was being taken up by the bees, and that it was no trouble to work in the apiary so long as the thin syrup was present for the bees. No question but that the thin syrup is a boon if work has to be done during a honey-dearth such as we have had in a few counties adjoining Toronto this year.

* * *

The weather in this part of Ontario is to date, Aug. 10, quite similar to what it has

been all summer—very dry. Clover for next year, in so far as alsike is concerned, gives promise of being a negligible quantity. As stated in last batch of "Notes," the white-honey crop is very short. Best estimates place it at about 15 pounds per colony for the Province of Ontario. Counties adjoining Toronto have practically no white honey at all, while the main amount of surplus white honey has been produced in the north-eastern counties—places where the crop was a failure last year. Our five apiaries in York and Ontario counties did not store a pound of really white honey; but at the yard 100 miles north, late in the season we got a spurt in nectar secretion that changes matters very agreeably so far as that locality is concerned. No large crop there by any means; but when total failure is staring one in the face, a good half-crop coming unexpectedly is not to be despised.

* * *

Some ten or twelve years ago I happened to notice what at that time I thought was some kind of shrub, a plant about three feet high covered with small rose-pink blossoms on which the bees eagerly swarmed during July and August. Every year I would go to the spot, and the few plants were always there, for, although the place was uncultivated, yet the plant in question never spread. Last week I was at the north yard, and I found out that the plant in question is fairly common in rough land up there. The bees were working freely on this plant; and a peculiar thing about it is that the pollen is a vivid green. However, after coming home again I at once walked the half-mile or so to the few plants near home, and found that they were there as usual. I cut off a complete plant with my knife, and was surprised to find a milky exudation issue at once, and I saw that it was not a shrub, but a perennial—something of the milkweed family. Just then I happened to read the editorial in Aug. 1st GLEANINGS regarding swamp pasture, and I came to the conclusion that my rare plant is the swamp milkweed. A text-book on botany was hastily consulted, and, sure enough, that is what it is. It surely is a fine honey-plant, judging by the way the bees work at it, and I have been wondering if it is at all common in many parts of the Province. Although I have lived all my life in York Co., the few plants in the one place are all I have ever been able to find until I found it fairly plentiful in a few places up at the north yard last week.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

HONEY-CROP REPORTING.

There will doubtless be considerable variance in the reports sent to the Bureau of Statistics at Washington. Some of the reporters will report for their own apiaries only, while others will report for their district or county. The benefit on the whole is going to be considerable, as can be seen from the report already sent out.

* * *

THE HONEY CROP.

Honey-crop conditions can now be pretty well defined. The shipping crop will not be as large from Colorado as last year. The conditions have not been so generally favorable. In the vicinity of Boulder the production will not average one case of comb honey to the colony, while in some districts, not more than twenty miles away, it will double and treble that amount. We think that the lack of several good rains in July is the reason for a short crop near Boulder. The district is overstocked, too, which makes the crop short except in the best years. The bees operated for extracted honey have given a better account of themselves this year than the comb-honey colonies. The flow has been so slow that it is very difficult to get super work done. Swarming has not caused us any trouble this year; in fact, conditions would have been better if there had been more swarming.

* * *

MALICIOUS DESTRUCTION OF BEES.

My brother, W. H. Foster, has had a severe loss from some disgruntled person attempting the destruction of fifteen colonies of bees by pouring kerosene over the bees and frames. Three colonies were destroyed outright, and the others weakened very seriously. Several hundred pounds of honey were ruined.

The writer has had his troubles from honey-thieves, as the following clipping from the *Daily Herald*, of Boulder, shows:

CATCHES U. S. TROOPER STEALING HIS HONEY; WESLEY FOSTER OUTGENERALS SOLDIER, BUT TUMBLES INTO DITCH.

By superior generalship, Wesley Foster, the apiarist, last night surprised and identified a federal trooper who is suspected of having been responsible for the theft of about 200 pounds of honey from the Foster beeyard a mile east of Superior. The trooper, Private Snaw, is now under arrest at the federal camp in Superior.

Foster, accompanied by Elwin Townsend, was returning to Boulder on a motorcycle from his beeyard near Lafayette, when, about 7:30 o'clock, he met the soldier near the Superior yard. He stopped to talk

with the soldier for a few minutes, and, suspecting him, Foster led him to believe that he was coming right into Boulder.

Instead, as soon as he got to a place where he could hide his machine, Foster dismounted, and, with Townsend, started back to the beeyard. He was armed with the handle of a pitchfork. Entering the beeyard he found Snaw. Then throwing the pitchfork handle up as though it were a rifle he commanded the trooper to throw up his hands. The latter obeyed, until, when Foster moved closer, he realized that he was not looking into a rifle. Then he turned and ran for the camp with Foster after him.

A cross-country race ensued, with Foster gaining all the way. The trooper leaped one ditch and then led Foster to another. In trying to clear the second, Foster stumbled and fell in. Snaw got away. Nothing daunted, Foster picked himself up and proceeded to the camp where he made complaint to Lieut. Oliver who is in charge. The latter ordered Snaw, who was the last man to enter camp, to come out. In the darkness, Foster and Townsend identified the man.

The federal trooper was not alone, however, as he was with two others who have since been apprehended and placed under arrest. The other two are striking miners, and the three got away with about 200 lbs. of comb honey in four raids on the apiary within one week. Since catching these parties the yard has not been molested.

* * *

ORGANIZATION AND SELLING.

O. B. Metcalfe has an article on pages 556-557, July 15, on organization in the marketing of honey. Mr. Metcalfe intimates that the aim of organization in selling is to raise the price of honey. This may be the aim of some organizations, but it should not be the main aim of a selling organization. Organization should be made to bring about sane distribution, and then the price will largely take care of itself. Demoralization in distributing methods is responsible for low prices quite as much as beating down the prices by the dealers. The organization that will push the product into the unsupplied grocery stores and keep it there will build a market that will take honey at a fair price almost any year.

Comb honey need not retail for more than fifteen to twenty cents a section, and extracted honey need not cost the consumer more than twenty-five cents for a pound jar to bring the producer a good price. But he will have to have an open channel between his apiary and the consumer's table. There cannot be too many buyers, brokers, jobbers, wholesalers, and retailers between. Of course they are not competent honey salesmen in many cases. If they were I believe we could pay them their seemingly heavy toll.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

PREVENTION OF SWARMING.

"What causes bees to swarm and how can it be prevented?"

Well, I am just foolish enough to believe that the swarming of bees is due to the same reason that explains the sitting of certain "biddies" amongst a flock of hens. And allow me to say right here that, when any colony of bees get the swarming fever, the stopping of their swarming is about as provoking to the apiarist as is the "breaking up of a setting hen" to the man who is making the production of eggs his means of livelihood. Once in a while there is a hen that one can frighten from her nest by suddenly throwing an old blanket over her and giving a terrific yell at the same time, but the majority may be taken off the nest and they will "set" on a board or on the floor or even on their roost. And so it is with the bees. Once they get the swarming fever, the majority of the colonies seem very determined. With one the queen-cells nearly ready to seal may be cut, and the bees will give up the swarming; but with the majority it is of no use whatever. Swarm they will, or else "sulk" during the time of honey harvest so that they are of little good. All animated nature seems to have heard the mandate "Multiply and replenish the earth;" and why should bees be an exception?

The presence of a large amount of brood seems to be the main cause leading to swarming, especially where this is combined with a brood space a little under the capacity of the queen. Under such conditions, and a yield of nectar a little more than sufficient for the feeding of this brood, so that the egg-laying capacity of the queen is becoming more and more encroached upon by the storing of this nectar in the brood-combs through the failure in putting on the surplus receptacles at just the right time by the apiarist, swarming is bound to come, unless a sudden dearth of nectar of long duration occurs.

There are two remedies for such a state of affairs, the first of which I now consider preferable. Do not allow such a state of affairs to exist. Prevention of the swarming fever is much more preferable than a cure, inasmuch as it brings much better results. When we have reason to believe that the brooding capacity of any queen is about to be encroached upon for any reason, *just* then is the time for putting a queen-excluder on top of the hive the colony has so far occupied, and over the excluder another hive

of the same capacity filled mostly with frames of empty comb. Unless there is an abundance of honey below, it is better to have one-fifth of the comb capacity given containing honey, so that the bees will consider this upper hive their "store room," and immediately commence to give the queen the needed room for her eggs by removing the most if not all of the honey from the brood-combs to those above. This extra room not only stops any encroachment on the egg-laying of the queen, but also gives the bees a chance to "spread out" at night when all have returned from the fields, and in this way the swarming fever is held in abeyance for from two to three weeks longer than it otherwise would be, or until both hives are well filled almost to crowding with mature bees, and the rush of nectar from the clover or buckwheat fields has commenced. Now is our time for action again. The upper story should now be put in place of the lower one, and the sections or extracting combs put on as the case may be. Then the queen and all the bees should be shaken from the brood-combs they are occupying, thus consolidating the whole force of bees in the hive they had previously been occupying as a "store room," and the hive of beeless brood given to some nucleus or weaker colony. If the surplus apartment is of sections, some of those in the super immediately above the "store room" should be full of comb left over from the previous season. In this way the bees take the hint at once, that their store room is still above. The swarming fever is still kept in abeyance, the honey removed to the sections to give place to eggs, and this removal supplemented by the nectar coming in from the fields causes the sections to be filled as if by magic, together with satisfied bees and a more than satisfied apiarist.

The other remedy is, when the swarming fever has prevailed till queen-cells are well under way, or the colony has swarmed and the swarm returned, remove every brood-comb having any brood in it and replace with empty combs, or at least those having no brood. While a little honey seems to do no harm, a little brood left often upsets the whole thing, for the colony is apt to start queens-cells upon it and then swarm. The brood-combs that are removed can be used as was the beeless brood and thus any weak colony can be brought into a profitable condition, both colonies doing fairly good work for themselves and the apiarist.

GENERAL CORRESPONDENCE

WINTERING BEES IN THE CELLAR AND ON THE SUMMER STANDS

BY R. F. HOLTERMANN

With all that is known in connection with the wintering of bees there are still tremendous losses recorded, and from winter to winter a great difference in the outcome of this important problem. What is the reason? *Is* there a reason? These are questions which may legitimately be asked. That everybody engaged in beekeeping has something to learn about this question is undoubtedly true. There is no one who knows it all.

the brood. Now, I know that honey-dew in winter stores is alien to successful wintering. However, I have some 800 colonies to deal with; and to take that honey out of the brood-combs and return each colony to its own brood, and do this in the robbing season means a tremendous outlay of very unpleasant work and nerve tension in seeing that every thing is done right. Then there is the syrup to make and feed, with the loss in weight through storing. Shall I run chances,

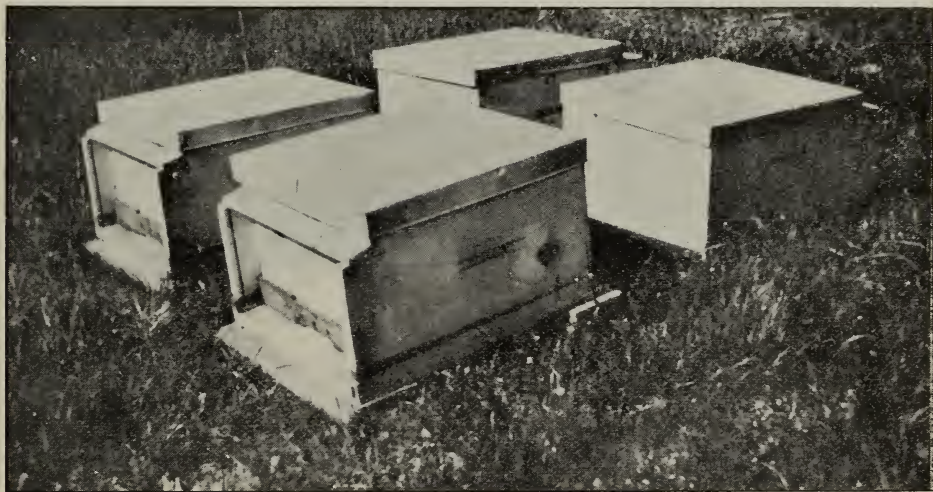


FIG. 1.—Four of Mr. Holtermann's colonies on their summer stands, in which position they are easily brought more closely together for putting into the winter case.

Undoubtedly like conditions bring about like results. If the results are not alike with conditions alike so far as we can judge, it is simply because conditions that have not yet come under our notice have not been alike, or because we have made an error in judgment.

I am not at all prepared to say that I understand how to winter bees most successfully, but I am sure I do know how to put bees into winter quarters and have them come out with very little winter loss. But does it pay to carry out practically this knowledge? I mean that there is a question before me at the present moment. The bees during the early part of the clover bloom have gathered quite a perceptible quantity of honey-dew. This went into the brood-chamber, and was stored and capped about

knowing that the bees in this locality generally get one or two cleansing flights during the winter, coupled with the fact that there is not much honey-dew? So in wintering as with other problems in connection with the apiary, it becomes a question not only of knowing the best conditions but also of applying the knowledge in management; and not only that, but of judging as to the wisdom, from a business-standpoint, of running risks or chances to avoid an outlay of time and money.

I am not prepared to say to what extent humidity, temperature, fresh air, and disturbance by other colonies, enter into the cellar-wintering problem; but I have no doubt all are important factors. To find out to what extent they are important is beyond the means and province of the individual or

private beekeeper; but if our government apicultural stations want to do valuable work, and benefit beekeepers, they will do something along this line.

For inside wintering, evenness of temperature is a factor; yet I would sooner allow a free access of not extremely cold outside air through open doors continually than to

bees successfully packed on their summer stands, and that a friend of his at Rockingham (Mr. Pomrank) has wintered outside for years with eminent success. This report widens the area for outside wintering very materially.

The system I advocate is to see that every colony has a young laying queen, or at least

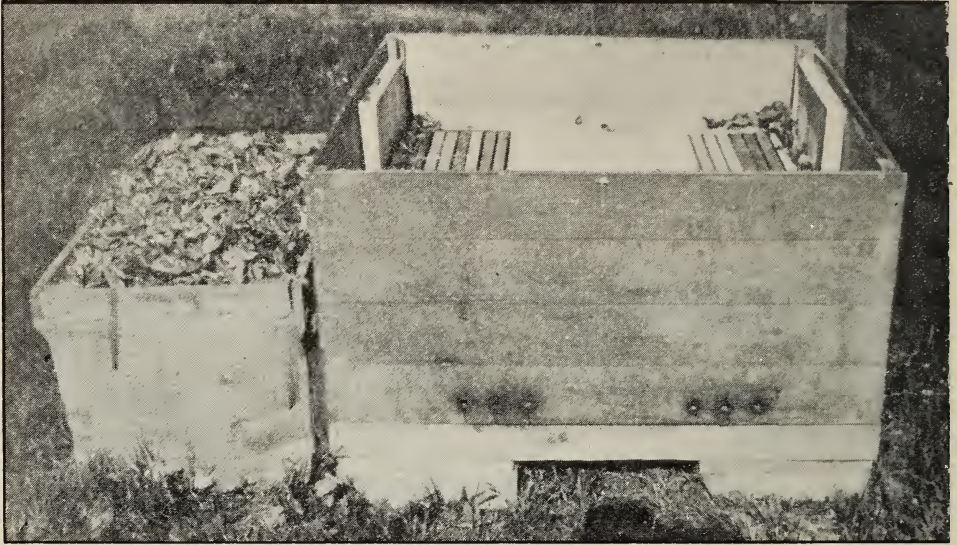


FIG. 2.—One of the winter cases for four twelve-frame hives with top packing removed. The basket at the side holds the forest leaves which go to make up the rest of the packing.

maintain an even temperature at the expense of fresh air. I have no doubt some of us have greatly overestimated the number of colonies that should be kept in a given space. Hives closely set together obstruct ventilation, and the more compact they are, the more one colony disturbs another when its wintering conditions are bad. For this and other reasons I prefer a sand or gravel floor in a cellar. It conducts sound or vibration less than cement or board, and for the same reason every pile of hives, and, as far as possible, every hive, should be on a separate bench or stand.

OUTSIDE WINTERING.

So far as my experience goes, outside wintering under proper conditions is better in all the counties lying directly north of Lake Ontario and Lake Erie. I have stated at some of the New York conventions that I felt sure that bees could be wintered successfully outside much north of what we have believed. During the past spring I received information from Mr. Harold Kinder, Rockingham, Renfrew Co., Ontario, where the temperature often drops to 40 degrees below zero, that he has wintered

not a failing queen, to contract the brood-chamber so the bees fairly well cover the combs in October weather; to pack the bees in this section by the end of September, or even two weeks earlier, and to put four colonies in one outer case. Then in the row I want the first case with entrances to the

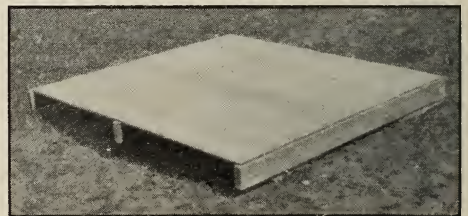


FIG. 3.—Bottom of Holtermann's winter case.

side, the next case no entrance on that side, thus breaking the rows for flying all through, and preventing drifting. I set the winter cases on blocks six to nine inches from the ground. About the apiary, which should not be larger than 45 to 50 ft. square, I put a fence 8 feet high.

The later the bees are fed for winter the better, so long as it is done before settled

cold weather. This is particularly true of bees packed. With us, Oct. 15 is not too late. A feeder that brings the food in contact with the top of the hive is best for cool or cold weather feeding. I use a two-quart jar with a perforated top.

To mix the syrup I use $2\frac{1}{4}$ parts of sugar (by measure) to one of water. Bring the water to a boil, then stir in the sugar until dissolved; then add one teaspoonful of tartaric acid (first dissolved in water) to every 12 lbs. of sugar. The main object of the tartaric acid is to prevent crystallization of the thick syrup. Now this syrup is free from pollen and honey-dew, and, having been fed late, will constitute the early winter stores for the bees. In our locality a strong colony well wintered, during almost any spring, with the help of the beekeeper bruising capped honey when natural stores are not coming in, will use all the stores that are left in the hive.

METHOD OF PROTECTING FOR WINTER.

Fig. 1 illustrates four colonies of bees before putting them into the winter case, showing their position in summer, two side by side, and the pair back to back. During summer they should be far enough apart to permit one to get around them when the supers are on. In the packing-case they are close together so one hive protects the other from cold on two sides. There is about two inches of packing at the bottom, and four to six at the front and sides. Fig. 2 shows the packing-case with basket of forest leaves standing by it. The basket is made out of a wooden framework covered with burlap, and large enough to hold the top packing. It is made of light material for convenience in carrying. In the case where the cloths are partly removed, two 12-frame Langstroth hives can be seen. Two covers are also shown set at the side of the hives against the outer case where they act as packing. For the 12-frame hives the sides

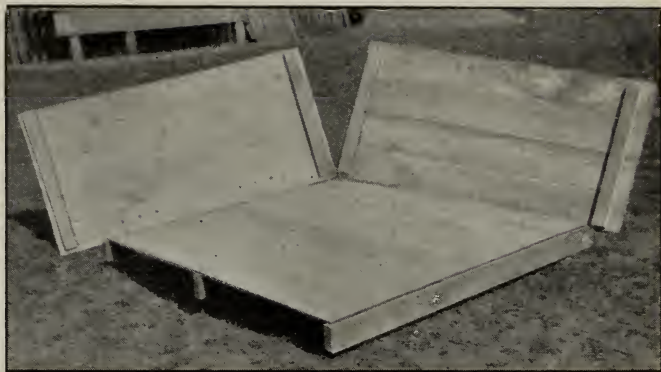


FIG. 4.—The end and sides of a case ready to assemble.

are made of 4-ft. walls high enough to permit a super and queen-excluder on the hive.

Fig. 3 shows the bottom of the case. Notice there are three one-inch by four-inch foundation pieces. In length each end projects $\frac{3}{8}$ inch beyond the platform board, and the outside 1 inch by 4 inch pieces for their entire length also project $\frac{3}{8}$ inch beyond the end of the platform boards, giving only $\frac{5}{8}$ inch of a nailing surface for the boards resting on them. The object of this is to let the side pieces of the case drop over the floor of the case, thus shedding water, the sides resting on the projecting platform supports.

Fig. 4 shows the end and side of a case and its relative position on the platform.

Fig. 5 shows another view of the side and end of the case.

Fig. 6 shows the under side of the cover and the method of nailing the cover-boards on the cleats. The latter fit outside of the case. The wooden cover made of one-inch boards is made water-tight by covering with roofing-paper.

Fig. 7 shows the winter case packed and

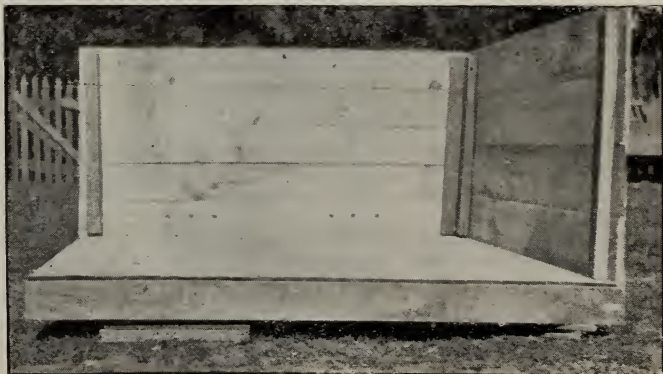


FIG. 5.—Another view of the end and side of a case, showing their position on the floor or platform.



FIG. 6.—The under side of the cover. The cleats telescope over the sides of the case.

mounted on concrete blocks. These blocks are 9 inches high, 9 square at the base, and taper to 6 inches at the top. These blocks

into the entrance. The case is painted a dark red, with a paint commonly used for barns. Brantford, Canada.

are a new thing for me; but I have found where the winter case is close to the ground the ice, during the winter, and particularly in early spring, is close to the entrance of the case, resulting in many bees chilling on the ice.

I have no block nailed to the outside of the case and under the entrance, because it becomes a platform for snow, and tends to conduct snow

A SATISFACTORY EXPERIENCE WINTERING IN A PIT

BY B. BREWSTER

My experience last winter in wintering bees in a pit may be of use to some of your readers in the newly settled parts of this great West. For ten years I had uniformly good results from wintering in the cellar under the house; but in 1912 I put 83 colonies down; and though, no doubt, there were several factors which contributed to the disaster besides that of overcrowding, I lost 30 colonies, and many others contained only a small cluster four or five inches in diameter. This latter condition may have been partly caused by a high wind from the south which sprang up before 9 A. M. on the morning the colonies were put out, which caused the bees to drift toward the hives on the south row, with the result that I had 12 very strong colonies and a splendid opportunity of testing the Alexander method for weak colonies. (I succeeded in every case; the two put up on the seventh day were rather inclined to quarrel, as many dead bees were put out the first day; but ultimately they united and were built up to good strong colonies.)

Having about the same number to winter in 1913 I remembered the cover picture of the Jan. 15th issue for 1912,

which showed a clamp or pit in course of construction. Noting that a sandy soil is indispensable, and as we have that to perfection, I decided to put 25 colonies into a pit. I was unable to find the copy of GLEANINGS with the picture and instructions, so I had to depend on my memory and put them in with bottom-boards on, and closed the pit Nov. 2. I put a stove-pipe in the center, but covered it over with four burlap bags held down and packed around with dry soil. I left a space between the poles, also between the hives, so that I could lower a thermometer and take the temperature during the winter. We

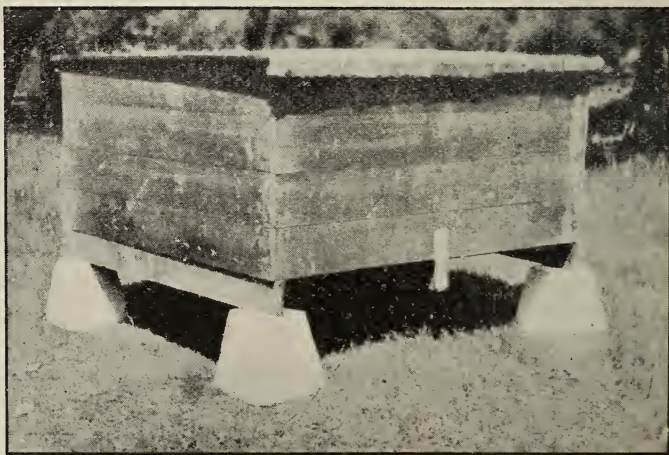


FIG. 7.—The winter case complete, standing on four blocks to keep the ice away from the entrance.

had no snow during November or December, and, though exceedingly mild, the frost got deeper into the ground than it would if covered with snow earlier in the season. The temperature in the open was about the maximum for the day.

	Temp. in open	Temp. in pit
Nov. 4	12 degrees	42 degrees
Dec. 1	40 "	42 "
Dec. 15	44 "	42 "
Dec. 21	0 "	36 "
Feb. 2	30 "	36 "
Feb. 18	5 "	36 "
March 13	40 "	48 "
March 25	5 "	48 "
April 21	58 "	50 "

The pit was opened April 25, and all the bees were alive, though the entrances were closed up with mold and dead bees. As the quilts had been loosened before putting in, they did not seem to have suffered much by leaving the bottom-boards on. The number

of dead bees in the pit was very small, and I had never had such strong colonies after wintering in a cellar before, and the amount of stores used was very small compared with those in the cellar which had a temperature of 48 to 54 degrees all winter.

This may not be, as you may remark, "a universal solution of the wintering problem," yet to many beginners in northern latitudes, often with very small cellars, if other conditions are right, such as sandy soil and snow on the ground all winter, it may be very useful; and for an outyard, if I could get the right kind of soil I would rather pit them than bother people who have no use for bees by renting cellar room, which at the best is none too good, many of them being cold, damp, and the air in them very impure.

Greenridge, Manitoba.

FALL MANAGEMENT THAT INSURES ROUSING COLONIES THE NEXT SEASON

BY W. A. LISHMAN

Strength of colonies in accordance with the season is the most important general requisite. What years ago would have been considered rousing colonies, many now class as medium. This change has been brought about by more care in the fall, the rewards being just as large as the fall treatment was efficient. Yet, backed up by my own experiences of this season's work, I think nearly all beekeepers fail to study out and practice conditions that will produce such strength of colonies in spring that one such will be worth three ordinarily treated ones.

To-day (June 20) this was certainly impressed on me when working some colonies that had received different fall treatment. We examined 17 that were wintered in an eight-frame L. body, and given room May 15. They had from eight to ten frames of brood two-thirds to three-fourths full. Many would consider these good colonies when clover was just beginning. What would they say at the sight that met our eyes when we opened up, for the first time since last August, two colonies that were wintered in two ten-frame bodies, with frames spaced 1½ inches from center to center. We certainly said something, and so would any enthusiast of bees. Three times as many bees and twice as much brood as those eight-frame L. colonies would encourage any one who wishes "more bees" but fewer colonies. The lower frames were solid brood from top to bottom, with some pollen in the top of the outside combs. Those in the No. 2 body

would alone equal many an eight-frame L. colony in two bodies. When such are kept, there is no need of having 200 or even 100 colonies—60 to a man is all I aim to keep.

How to assist the bees to become such profit-producers takes a rather long time to tell; for, all summer and fall, every thing that is done helps to improve them.

I believe that colonies that breed heavy in summer quit too soon in the fall, and by all means a young queen is needed, not only for late laying, but so she will not fail next spring. Even some, not a year old, give out before I am quite through with them.

Being assured the bees and queen are right, the attention is centered on their housing conditions. Our last extracting-body is taken off about Aug. 26 to Sept. 1, at which time the brood-body is raised up without disturbing the excluder, and put under it those containing combs just extracted, or others deemed good enough. The four outside ones are usually combs drawn from foundation the same season, while the other six are good worker combs more or less clogged with pollen. Those clogged the worst are alternated with those not so bad. Then the colony is fed quite liberally for about three weeks, with a three-to-one honey mixture so they will gain about 20 lbs. After Sept. 21 we feed sugar syrup every three days until Oct. 15. About 15 lbs. of sugar is allowed per hive.

The result of such work is that we have brood in our hives by the first of November.

As we pack them in August there never is any danger of chilled brood. The bees have a fine clean place to cluster when the last brood has issued, and can use the $\frac{1}{4}$ -inch space between body and frames as a passageway. When they want food they go up until in March, when they find themselves uncovering a fine supply of pollen that had stores put over it by our liberal fall feeding.

We may, then, conclude that better success with bees comes from extended fall breeding, covering up or using up pollen so the combs and bees are bright and clean during winter, and the uncovering of a pollen supply in March by a force of bees that can allow a queen to lay to the limit of her powers.

Cayuga, Ont.

SOME UNUSUAL ADVICE IN REGARD TO WINTERING BEES BY ONE WHO HAS HAD MUCH EXPERIENCE

BY J. E. HAND

The wintering of bees in the Northern States and Canada is undoubtedly one of the most important problems connected with beekeeping; for a poorly wintered colony of bees cannot be depended upon for best results in honey production any more than a poorly wintered cow can be expected to yield a heavy flow of rich milk. The wintering problem has perhaps been solved oftener than most other problems, and yet but little improvement has been made in wintering methods during the past quarter-century. A noticeable indication of improvement, however, is the present movement back to outdoor wintering.

OUTDOOR WINTERING.

Beekeepers in the Northern States and Canada are coming to realize more and more the superiority of outdoor wintering when properly conducted. Bees wintered out in the open in properly protected hives with good stores of pure honey (not sugar syrup) will usually be healthy, strong, and vigorous in spring, which means rapid breeding in early spring and comparative immunity from the ravages of disease, for a normal condition and strong vitality is the best kind of disease prevention. I am a firm believer in the immunity from such diseases as European foul brood, paralysis, spring dwindling, dysentery, and kindred disorders, by maintaining sanitary wintering conditions, with respect to pure food in abundance and suitable protection out in the open.

There are three conditions necessary to successful outdoor wintering; namely, plenty of bees of the right age and condition; plenty of honey, and suitable protection. No attempt should be made to winter a colony of bees out of doors that is light either in bees or stores. The hive should contain at least thirty pounds of honey, and the cluster should be of sufficient size to maintain a normal temperature during severe weather without exhausting their vital-

ity by an abnormal production of heat. Colonies deficient in these respects should be united, and fed up to standard requirements; this should be done before the middle of September, and solid combs of capped honey is the cheapest and best way to feed bees in the autumn. The heat-producing power of a cluster of bees of orthodox proportions enables them to maintain a temperature of 90 degrees in the winter nest in zero weather; hence the correct principle in wintering bees is to contract the wintering-chamber to a capacity barely sufficient to accommodate the bees, and sufficient stores to carry them through in safety. Eight frames is the maximum capacity for best results, and six is nearer correct.

Having contracted the wintering-chamber to the orthodox capacity, the next step is to surround it closely with a thick wall of heat-retaining material such as chaff, planer-shavings, dry sawdust, etc. Two or three inches of such packing is sufficient for the sides; but the top should be protected by at least seven inches of fine dry packing above a thin cover that has been sealed tight by the bees, thus maintaining the regular bee-space above the combs. Said chamber should be of sufficient depth to admit a three-inch space under the combs, and the entrance should be $\frac{3}{8}$ inch deep, and six to eight inches long. Moisture will not condense in such a chamber with thin walls; and the deep space under the combs, combined with the wide-open entrance, will conduct it out by diffusion instead of absorption; hence the inner walls will be dry with no upward ventilation to create a draft or allow the heat to escape. The packing material will conserve the heat and give it back to the cluster during a spell of severe weather, hence a comparatively uniform temperature is maintained automatically, and a sudden change in the temperature outside will not be felt by the bees unless of long duration.

The difference of opinion concerning the relative value of sealed covers and absorbents is due to the fact that all do not recognize the importance of a deep space under the combs and wide entrance, both of which are imperative with sealed covers. In all operations with bees, the closer we imitate nature the greater will be our success; and since bees are very careful to stop all upward ventilation at the approach of winter it is the part of wisdom to assist nature by providing thin covers which are easily and economically sealed by the bees, instead of putting them to the extra labor of gumming and propolizing quilts to render them impervious to upward ventilation, which is abhorrent to bee nature. The beehive architecture of to-day is sadly at fault because of inefficiency of wintering service along economical lines. There is no valid reason why every hive should not be a perfect wintering repository with all the advantages just mentioned, positively at present summer-hive prices. The hive that is the embodiment of this principle is already in operation under the appropriate cognomen of the "Sweet Sixteen" convertible hive. It is designed, constructed, and manipulated along strictly economical lines, that actually cut the present cost of honey production in two, and furnish the correct solution of the wintering problem.

CELLAR WINTERING.

The cellar wintering of bees is a subject that I would feign pass by because of the knowledge that much that I say will conflict with the opinion of many who read it. The fact is, I have served my apprenticeship at cellar wintering, and have no further use for it, simply because it is an open violation of nature's laws, and we cannot violate *her* laws with impunity. The penalty for the violation of nature's laws by the compulsory retention of fecal matter during long confinement, often at a temperature at which bees outdoors would void their excrement in a cleansing flight, is usually distended abdomens, and dysentery, followed by paralysis, spring dwindling, and general debility, frequently terminating in European foul brood. Bees love to revel in God's pure air and bright sunshine, hence an enforced confinement for four months in total darkness, often in damp ill-smelling cellars, is not conducive to health, and certainly not to their happiness, as is frequently attested by noisy expostulations and roaring; and many, unable to endure confinement longer under such unnatural conditions, will leave the hives and perish; hence the amount of dead bees on the cellar bottom is frequently out of proportion to the live ones in the hives.

Is it any wonder that it is costing thousands of dollars annually to prevent the spreading of disease? Is it any wonder that fifty per cent of the colonies in the Northern States are not in condition to enter the supers at the beginning of clover bloom? I make no positive statement; but science and common sense agree that a weakened and debilitated organism is very susceptible to disease, either by infection or contagion, while a vigorous constitution and strong vitality are practically immune to disease. Viewing it thus, it is evident that if beekeepers would practice sanitary methods of wintering, and see that their bees are always liberally supplied with healthful food, foul brood and kindred diseases would lose their terrors.

FEEDING SUGAR SYRUP.

Any thing having a direct influence upon the health and vitality of bees has an important bearing upon the wintering problem; hence sugar-syrup feeding is always a timely topic in connection with wintering. The oft-repeated statement that sugar syrup well ripened is the equal of honey, pound for pound, as food for bees, is misleading in several directions. First, it fails to mention the lost vitality of the bees that ripened it, which is greater than many suppose; second, it does not state that a honey-fed colony will usually show fifty per cent more brood early in the season during a dearth of pollen than one of equal strength fed on sugar syrup. Since there is no labor that exhausts the vitality of bees so rapidly as the ripening of thin sugar syrup, it should be fed only as a last resort, and not thinner than two parts of sugar to one of water. Personally I regard solid combs of capped honey as the cheapest and best winter and spring food.

[The fact that honey contains pollen and sugar syrup does not make it necessary perhaps to provide more combs of pollen when sugar syrup is relied upon for winter stores—just how much more we cannot say; but since the pollen in honey is almost microscopic, it would seem that the amount contained in honey could not go far in actually providing food for brood. That it *stimulates* brood-rearing, there is no doubt.

We do not believe that it is any harder on bees to evaporate sugar syrup, especially if thick syrup is fed, than to evaporate natural nectar. Hence, if bees rely on late nectar for stores it seems to us that the evaporation and inversion necessary would be little if any less than if sugar syrup were fed. Certainly thousands of colonies are successfully wintered every year on sugar syrup. See what L. W. Wells says, page 681, of this issue.—ED.]

HIVES BURIED UNDER SNOW AND ICE

BY F. L. POLLOCK

I usually spend the winter in some milder climate than that of Ontario, and the bees are left alone from November to April on their summer stands. They are packed, some one, some four, but mostly two hives to the case, with about four inches of planer-shavings around them, and a chaff cushion and about eight inches of shavings on top. I used to worry considerably about the possibility of the entrances being choked with snow and ice in my absence, but lately it does not trouble me so much.

strong. Only two were dead out of forty, and these owed their death to the work of mice, which had chewed up most of the combs. Doubtless the result would not have been so good if I had used sealed tops, but this is a practice quite unknown in Ontario, so far as I can hear.

From careful investigation since, I am of the opinion that entrances are very seldom entirely closed by snow or ice. The radiation from the packing-case, if painted a dark color, and the breath of warm air from



Pollock's apiary, run for comb honey in shallow frames.

Some time ago, on coming home in April I found the snow still deep. The six-foot fence at the north of the home apiary was drifted clear over in places. Most of the hives were entirely out of sight; some showed a bit of the roof. On inquiry I found that they had been so during most of the winter, which had been a very hard one, with temperatures of 20 degrees below zero lasting for days at a time. With much foreboding I began to dig around the hives. The picture (next page) shows how they looked after an hours' work. To make it worse, there was a sheet of hard ice about a foot down. This was the result of a heavy thaw and rain in February, followed immediately by severe cold and snow.

I never had better wintering than in those buried hives. Nearly all the colonies were

the entrance, cause the ice or snow to shrink away from the wood. Often when the entrance appears blocked, a careful examination will show that the snow is nowhere in contact with the wood. Daily it shrinks away a little more, giving quite enough ventilation for very cold weather if absorbents are used over the frames. By March the sun is usually warm enough to clear the entrances of snow; and if not, it may be better for the bees to stay inside until it is warm enough.

There were hybrids, Italians, and Carniolans in this yard, and I found that the yellow bees had by far the most dead on the bottom-boards. The hybrids came next, and the Carniolans had by far the lowest death rate. I have observed the same result almost every spring.

COMB HONEY PRODUCED AND SOLD IN
SHALLOW FRAMES.

The first picture shows the same yard during a heavy honey-flow. In this yard a good deal of comb honey is produced in shallow, unwired extracting-frames, and sold, frame and all, at 15 cts. per pound. Usually a frame weighs about four pounds, and I find this an extremely popular sort of package for the local trade in comb honey. Twenty-five cents is too much for the ordinary purchaser to pay for a section of honey, if he has good sense. I doubt if many beekeepers would eat much at that price. On our own table a single section lasts



Part of F. L. Pollock's apiary buried under snow in April.

hardly long enough to see it, and I should not like to have to supply the demand at 25 cents apiece. It is a certain fact, however, that section honey cannot be profitably produced at a much lower price, in this country at least, considering the number of unfinished and No. 2 sections. By the use of the shallow frames nearly as much comb honey can be secured as of extracted, and they are a good thing for the consumer and the producer alike.

I use either light brood or heavy super foundation in these frames, and do not find any perceptible midrib in either case. As a general thing sectional hives are employed. I get three stories full of brood and bees by

the opening of the honey-flow, raise up the top one, and put the super of foundation under it, with an excluder underneath. The bees will start almost at once, and a little sooner if an empty comb is put in as a bait. Such a comb also catches pollen. The upper story or section of brood may be left, and afterward extracted, or it may well be used to make increase in ten days, on the Alexander principle. Two of these sections will make a strong colony for the fall flow.

The scheme of cutting up combs to fit into sections seems to have struck a good many persons simultaneously. It dawned upon me two years ago, and I was convinced that I had hit upon the greatest apicultural discovery of recent years. I did not, however, contemplate putting sealed comb into the sections, but getting the combs about half drawn out in shallow frames first, and then cutting them up. I tried this to a limited extent, and it worked very well. I found no trouble in getting the bees to fasten the half-drawn combs solidly into the sections, and they afterward filled and sealed them perfectly. It is much easier to cut up the combs when about $\frac{1}{4}$ inch deep on each side, and put them in sections, than it is to put foundation in the same sections; and I did not find any thing to prevent the plan being a success. I did not carry it any further because I discovered that I could sell the shallow frames full of sealed honey about as well without cutting them up at all, and could get nearly as much for them. But where there is no market for comb honey in bulk, I think it would pay to give most of the sections filled with freshly drawn comb instead of foundation, and it is not at all difficult to manage this. If a little honey is in the combs when they are cut up I think it causes the bees to set to work on them more rapidly. I did not have any swarming from colonies that were given section-supers of drawn comb in this way, but there was not much swarming that season anyhow.

Stouffville, Ontario.

SOLID COMBS OF STORES VERSUS A WINTER NEST

BY J. L. BYER

During the first week of October, 1913, the editor of GLEANINGS wrote to me, asking that I conduct some experiments in outside wintering of bees. I surmised that he wanted me to try out the solid combs of sealed honey in some colonies, and in others to leave them in the orthodox (or at least common) way, viz., the outside combs fairly well filled with honey, while the central

combs would have but a rim of two or three inches of honey over the top, and the rest of the combs empty for bees to cluster on in cold weather. However, the notice came too late to have any colonies in the latter condition, as at that time my feeding for the fall was about all done. A number of colonies were fed almost altogether on sugar syrup, while at one yard in particular all were

heavy with buckwheat honey. I intended to watch closely during the winter and spring, and report at this time as to which lot wintered the best; but for some reason, despite the fact that we had one of the most severe winters on record, all colonies wintered so uniformly well that there was no room for comparison. Different sizes of entrances were given, varying from one inch in width and a half-inch deep, up to the full width of the hive, and nearly an inch deep. But in this case, again, results were practically the same. Another season might tell an altogether different tale; but, as already stated, wintering was universally good in all the yards, no matter how the bees were packed for winter. I might just add that the colonies given the very small entrances were at the home yard where I could give them attention when needed. An entrance that would be small at an outyard would be suicidal nine times out of ten in our locality, as, after or during a long confinement, such small entrances would get clogged with dead bees.

As I have already intimated, at the time the request came for me to try some experiments in wintering I had already done about all my feeding, so I had no colonies left with narrow rims of honey over the center combs. Let me say right here that, if any had been on hand, I would have first made it clear to the editor that he would have a colony or two of bees to pay for, as, with the severe and lengthy winter that we had, any colonies that had only a rim of a few inches of honey on top of the frames would be pretty sure to perish before spring, especially if the frames were of the regulation Langstroth dimensions.

Two colonies in ten-frame L. hives were selected at the home yard for the purpose of seeing if the bees would *freeze to death* if put into winter quarters outdoors on solid combs of honey with no empty cells to cluster on. No. 18 was a colony of goldens—the only hive of that race in the yard. No. 20 was a strong colony of three-banded Italians. Both were headed by queens from two well-known breeders. The goldens were the only bees to show signs of dysentery during the spring of 1913, and were selected for this experiment because of that weakness. Both colonies had been well fed up during the first week of October before I had heard from the Editor. Nov. 1 the weather turned unusually warm for the time of the year, and I at once placed inverted pails filled with thick sugar syrup over both of the colonies selected. The goldens took down slightly less than 10 pounds, while the other colony appropriated 15 pounds. All combs

were white over the top, and burr-combs were built freely. Nov. 23 another warm spell came along and the pails were again placed on hives with warm syrup. This time the goldens took barely half a pound, while the three-banders took five pounds. They seemed to be solid with stores, and took no more syrup as they had no room to store it.

Dec. 3 the weather was again mild, and I placed the pail once more over the three-banders, but they took only a few ounces. It will be seen by these figures that both colonies had ten combs of solid stores during the first week in December, so it will have to be admitted by all that the bees had no time to eat out a clustering-space to accommodate themselves during the cold weather that started in at once and lasted for over four months. The weather was of the normal winter variety with us till Jan. 13, when the thermometer dropped to 30 below zero—an unusual record for our locality. This figure was duplicated a good many times during January and February, and the bees had no flight till late in March.

The goldens showed slight traces of dysentery, but not as much as in the spring of '13. As this colony was the only one showing this weakness in the home apiary two springs in succession, it looks as though some strains, at least, are not as hardy as the darker bees. In fact, that has been my experience at different times when I have wintered goldens outdoors.

The colony of three-banders came through in fine condition; but I, of course, had to take some of their stores from them to make room for the queen to lay during fruit-bloom.

THREE-FRAME NUCLEI WINTERED OUTDOORS ON SOLID COMBS OF HONEY.

At the time I was requested to try these experiments I had four three-frame nuclei in the home yard which I intended to carry into the cellar to winter. I determined to take a chance on them outdoors, and at the same time demonstrate without a doubt that a comparatively small cluster of bees would winter on solid combs. Any one familiar with our latitude knows that it is no certain matter to winter small colonies outside unless the stores are good and *abundant*. Nov. 1 these four colonies were each given three solid frames of honey and syrup—combs of the Quinby dimensions. Placed at one side of a ten-frame hive with a division-board crowding the bees on to the three deep frames, truly that is about as awkward a shape as one could imagine, judging by the common idea that a cluster, to winter well, must be of a spherical shape. But, notwith-

standing the fact that we had many days away below zero, and that the bees had no flight till March, each one of these nuclei that were crowded up on the solid frames of honey in November came out in excellent condition, and are to-day among the best colonies in the yard. The two colonies fed solid, as well as these four nuclei, were in packed hives, each hive having two inches of sawdust in front, with three inches at sides and back. Each colony had burlap over the frames, and over all a sawdust cushion about four inches thick; also an air-space

or well-ripened syrup, and see if he does not get different results. Judging by my experience, some strains of goldens would not stand this test; but the beekeeper in question does not keep goldens, and his bees are very hardy, like mine; hence the advice I am giving with such confidence.

Feeding solid is not practical, as a general rule, and I do not pretend to say it is even advisable. But I do say that for wintering outdoors in our latitude it is much safer to go to the extreme in the matter of giving lots of stores than it is to feed up colonies



Lewis L. Winship's way of wintering in cases made of drygoods-boxes.

above the packing made by a gable roof, and in each end of the roof an inch hole to allow ventilation.

I do not claim any thing of value in these results; but I do claim that the idea that bees *must* have some empty comb to cluster on in order to winter well is fallacious.

A well-known apiarist in New York wrote me in the early spring, saying that a number of nuclei he was trying to winter in the cellar had all perished before spring because the cellar got too cold. Truly, as Heddon once said, "cold is a giant in a cellar," in so far as bees are concerned. I would suggest to my New York friend that this coming winter he snuggle up some of these nuclei on three or four solid combs of good honey

in L. hives for the purpose of being sure to leave them empty comb space to cluster on. In preparing for winter the one apiary of eight-frame hives that we have, we feed till they refuse to take any more, during the middle of October. While they may get some empty comb to cluster on by the time severe weather comes it would suit me very nicely if I knew that all were on solid combs as late as November.

With us one of the faults of the eight-frame hive for outdoor wintering is the difficulty of getting in enough stores to last till fruit bloom. We have had bees suffer because of the lack of stores, but never yet because of too many solid combs in late fall.

Mount Joy, Ont., Can.

WINTER CASES MADE OF DRYGOODS BOXES

BY LEWIS L. WINSHIP

I have had the best results in preparing bees for winter by the plan shown in the picture. In the late fall, which comes here in New York along the last of October or first of November, bees should be protected for winter. My method is to get drygoods-boxes, which most storekeepers will give away for the asking, and cut them down until, when placed over a hive, about six inches space will be left on both sides and ends. It should be left open at the top and bottom, although a strip should be nailed on the bottom, around the edges of the box, so that, when it is over the hive, the packing will not slip out on the ground.

When this box is done, a cover should be made out of the box-top to set on the case. When the framework of the cover is made it should be covered with any thing handy, such as tarred paper, a sheet of tin, or galvanized iron. This covering need not be nailed on if a weight of some kind is placed on it.

The packing should be done the latter part of October or first of November. A layer of straw, leaves, excelsior, or planer-shavings should be placed in the six-inch space between the box and hive. The more compactly this space is filled, the better.

When the sides and ends are filled to the top of the hive, a chaff cushion should be placed over the frames, the cover replaced, and the packing material spread evenly over the top of the hive to the top of the box, then the outer cover should be put on, and a heavy stone or brick placed on each corner of the cover.

Bees will winter in these boxes with less loss, and less consumption of honey, than in the ordinary way. These boxes, when made, may be kept from winter to winter, and any one, even if not an expert with tools, can make them with very little work. They keep the bees as warm and dry as they are in the summer.

Springville, N. Y.

CELLAR WINTERING IN NORTHERN QUEBEC

Wintering with Uniform Success Year After Year

BY H. HARLEY SELWYN

In view of the fact that wintering bees in northern latitudes is an undertaking so often fraught with loss and disappointment, and that for a series of years now, marked success has attended our efforts along this line, it seems to me that a short description of our methods and the cellar in question would be in order for this special issue of GLEANINGS, dealing, as it does, particularly with that topic.

In so far as we are concerned I have not the slightest hesitation in saying that our wintering problem is solved, and that it is now more a question of "Will the clover yield this season?" or "Will the weather be favorable during the basswood flow?" These, it seems to me, are questions where the real doubt and precariousness of beekeeping as a business exist, not in managing to tide colonies over from season to season.

In order to give a fairly comprehensive understanding of our methods of wintering it will be necessary to say a few words in regard to fall management; for as surely as good wintering means a quick spring up-build, so does proper fall preparation, to a large degree, insure good wintering.

We make it a point to requeen each fall with the best queens it is possible to raise, the reason being readily apparent to those who have watched and contrasted the laying capacity of a young and old queen at this late season of the year. Where an old queen is ready to reduce her work to a minimum a newly mated virgin will revel in her powers of reproduction, and fill the hive with thousands of young workers upon whose longevity the gathering of the honey crop indirectly depends, because it is these bees the following spring whose labors will brood and rear the army of workers for the main flow of the year.

It seems almost unnecessary to dwell long on the question of fall feeding, especially as space is limited, as so much has been said in this regard. Feed wherever colonies seem light, and where you have deprived them of the majority of their surplus. One might as well save himself the trouble of carrying light colonies into winter quarters, as they will surely snuff out before the spring is half reached. Be sure to have each colony so heavy that one has to strive in lifting it. Young queens and plenty of a good quality

of honey or sugar syrup, these are the two prime essentials for fall preparation.

In addition to the foregoing points, mention might be made of upward ventilation in the hive, and how this is arranged for, as ventilation of such a nature is, we consider, a factor in successful wintering. Toward the

with remains of propolis, and there is no danger of their being blown or shoved off after the wooden cover is removed. Furthermore, hives with this covering fit up close together and take up less space in a cellar of limited capacity.

For a description of the cellar a better idea can be obtained from the photographs than from almost any thing I could say. However, the dimensions of the cellar are 16x20 ft., with a 7-ft. wall. The walls and floor are of cement, and the ceiling is plastered, making practically a hermetically sealed chamber—all underground with the exception of the six-inch tile pipe running underground some 60 feet and rising in the center of the cellar floor. Directly above this is another six-inch ventilator, entering the bee-house proper through the cellar ceiling. The cellar is entered through a porch and double doors.*

The outstanding feature of the cellar, and undoubtedly the one reason why the bees winter with such uniform success year after year, is because of the constancy of the temperature. I have records taken every day all of one winter, and the thermometer remained at 40 degrees Fahrenheit with only the slightest variations the entire time, even though 30 and 40 degrees below zero was recorded many times outside. The air passing through a cowl at the end of the sub-earth ventilator becomes



One of a hundred similar colonies wintered as described by Mr. Selwyn.

end of September, after the main supply of propolis is cut off, the old quilts used during the season are replaced with new ones. These are made of light-weight canvas or duck, and are impervious to gnawing or tearing, and yet permit of air percolation. By placing them over the hives, next to the frames, a week or two before the time for moving in arrives, the bees fasten them down nicely

modified and assumes ground temperature. Much moisture or water vapor and carbon dioxide are constantly being given off by the bees, which pass through the porous covers over each cluster and then passes up through the ceiling-vent into the room above. In cold snaps its volume may be judged by the

* See cover picture for this issue.

huge stalactite-like masses of hoar frost gathered over the ventilator, and suspended from the ceiling of the honey-house.

The cellar is situated on a sandy hillside where good natural drainage obtains, and where a graded entrance may be had to the cellar floor, thus facilitating the work of carrying in.

The colonies are arranged on racks of a movable nature, as when one has to pack away upward of 150 colonies in a cellar 16 x 20 feet, and yet leave room to walk between the rows, no space can be wasted. When one rack is full the next is erected, and so on till the four are completed. In the spring the order is reversed; and as one is emptied it is taken down, leaving plenty of room to hustle out the next row.

Entrance to the cellar during the dead of winter is made through a trapdoor in the ceiling, and on a cold and stormy day it is a rather pleasant sensation to pass down into this cosy subterranean den and listen to the murmur of hundreds of thousands of quiescent workers. Each hive is blocked up off its bottom-board, and

with a candle it is quite possible to see the individual clusters. A special visit is made to the cellar about three times during the winter to sweep up dead bees, and, incidentally, satisfy our curiosity as to the state of affairs; but otherwise they are practically



The interior of Selwyn's cellar, showing the ventilator pipe in the floor, and one of the racks for holding hives. A picture of a part of the apiary and the exterior of the cellar is shown on our cover for this issue.

left entirely alone throughout a period of from five and a half to six months, and with eminently satisfactory results, as the picture of one typical colony taken on April 20 shows.

Kirk's Ferry, Quebec, Can.

"THE MAN WHO NEVER LOSES BEES IN WINTERING"

How He Does It

BY E. R. ROOT

In our issue for May 1 we referred to the fact that Mr. H. R. Boardman, of Collins, Ohio, had for the last 35 years, winter after winter, good, bad, and indifferent, wintered his bees without loss. It will be remembered that, three years ago, our friend still kept up his record in spite of the fact that it was the coldest winter known in thirty years, and in spite of the further fact that large numbers of our best beekeepers lost heavily. Believing that many would like to know something more about this man and his methods we promised that we would tell later on how he does it.

In 1889, when the present editor had been four years in charge of this journal,

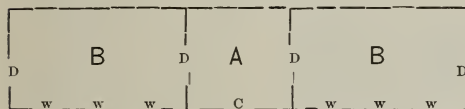
a good deal had been said about this man who never lost his bees during winter. We had a curiosity to visit him, and did so at the close of the winter of 1888. At that time we secured an extended interview which was published in *GLEANINGS* for April, 1889.

The winter repository was a plain building 12 x 50 feet, one story, with double walls 14 inches thick, and, if we remember correctly, the walls were packed. The building was divided into two compartments, each of which was connected with an entryway 10 x 10 in the center of the building. This entryway was placed midway between the two compartments, and entered by one door in the center of the

building. Two doors connected each of the two compartments with this entryway. While the building was provided with windows, these were closed with wooden panels so as to make the two bee-rooms absolutely dark.

The following is the ground plan of the building, which was produced at the time, and from this point we reproduce the further description with the interview we had with Mr. Boardman in 1889.

GROUND PLAN OF BUILDING.



A is the entryway; B B the compartments; C the doorway to the entry; and D D, etc., are doors to the compartments B B from each end of the building. W, W, W, etc., are windows, hinged in the middle in such a way that the window can be revolved to a horizontal plane, so as to allow the bees to escape.

As we approached the structure, I said, "I notice that the door is open."

"It has been such an open winter that I have been obliged to lower the temperature by letting in the outside air. Besides there are more colonies in the repository than I should prefer to have for such an open winter as the present one."

"How many colonies have you in there now?"

"I have 70 in one compartment and 100 in the other. In continuous cold weather the 100 would have been about right. But I find that from 75 to 80 colonies in each compartment average best, all things considered. During the past winter the compartment having the 70 did better than the one having the 100. During a severe winter the results might have been reversed."

"I suppose it will not be possible to get a photographic view inside; that is, it will not be advisable to let in sufficient light to enable me to take a picture."

"Oh, yes! I think there will be no trouble," and so saying he opened the end door at D; and not only that, he opened the three windows so that it was as light as an ordinary room.

"But, aren't you afraid that this light is going to disturb your bees?"

"For the length of time you require, it will do no harm."

Stationing myself at the end door D, I poised the camera and took the view shown below.

As Mr. Boardman has already explained in one of his articles, the bottom-boards are left on their permanent stands, and the hives, as you will notice by the engraving, are piled up in such a way that the bottom of one hive comes directly over the opening between the two below it. Instead of giving full-width entrance, as most beekeepers do who winter in repositories, he gives them the benefit of a large portion of the bottom of the hive. To the stronger colonies he gives more bottom space; to the weaker he gives less. On the average there is an opening at the bottom of each hive, 4 inches wide, and the full length or width of the hive. He does not then give them the full bottom, as I had formerly supposed, and as perhaps some of the rest of the readers likewise understood.

You will notice that friend Boardman dispenses with all stringers, shelving, or any other support to hold the colonies in the repository. They are simply piled up about 4 inches apart, one upon the other, break-joint fashion.

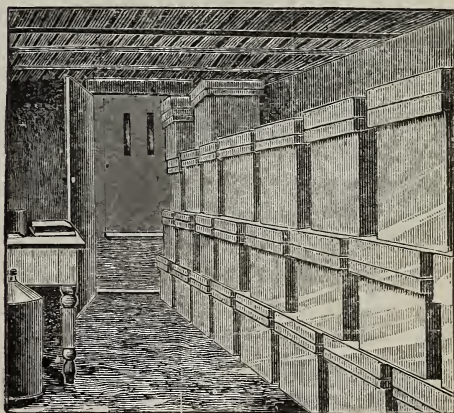
"Now, then, friend Boardman, Mr. Newman said he did not see how you could carry hives about with-

out bottom-boards, and yet not have the bees dropping out and flying out to make the job any thing but pleasant; and, what is more, I do not see how you do it myself."

"Why, easy enough," said my friend. Going to one of the hives (they are cleated clear around at the top, you will notice, the cover resting telescopic fashion on this cleat) he grasped its diagonally opposite corners. Leaning backward a little he let the edge of the hive bear against his person, carried the hive to the other end of the repository, set it down, took it up, and put it back. He did likewise with a number of other colonies. Each one he held up, turning it up so that I could see for myself the condition of the bees, and how they apparently regarded such kind of handling. While it looked real easy I could not be content until I tried it too.

"To prevent the bees flying out when about to remove them to their winter quarters, I am particular," he said, "not to jar the hive unnecessarily, and then I prefer to have the weather just cool enough at the time so that the bees cluster a little closer than usual."

"You see," he continued, "I letter each row in the apiary, and number each individual stand. Now, when I get ready to carry the bees out I take the first hive I come to, which, in this case, proves to be F 18. Of course I know where the row F is;



An inside view of Boardman's winter repository, showing front row of hives.

and 18 I know to be somewhere about the middle of the row; and with the hive in this fashion" (holding it in the manner before explained), "I take a bee-line to the bottom-board having the same marking as the hive."

"But," I said, "do you think it makes any great difference as to where the colonies are put?"

"Not much, but it does some; and if I can deposit each colony where it was last fall, just as easily as not, I very much prefer to do so rather than to set them out haphazard. There is then no confusion among the bees when they take their first flight; for some old bees will be sure to know where their old stand used to be."

"I want to know what sort of a cover you put over the frames in winter."

"All the bees have is the regular hive-cover, and this they usually glue down tight; that is, I put the bees into the repository just as I find them on their summer stands, after I have satisfied myself as to their strength and amount of stores."

Now, perhaps some of our readers will begin to wonder whether those bees, during all this time when

the repository was lighted as light as any ordinary room, did not become more or less disturbed, and fly out. I expected to see them fly out a great deal more than they did; but only here and there a bee would start out from its hive, and strike for outdoors. Then I said to Mr. Boardman, "You would not like to leave this compartment lighted up like this all day, would you?"

"No, sir; but for a short time it does no particular harm. The few bees that fly out are old ones, rather feeble, and are not of much use to the colony. My colonies have been rearing brood quite heavily, and there is a large force of younger bees to take their place."

Glancing down to the floor (concrete cement) I noticed there were a good many dead bees. In some places, perhaps they were an inch or so deep.

"Now, it seems to me you have got a good many more dead bees as the result of your indoor wintering than we have from our chaff hives, on their summer stands."

"Yes; but," said he, "I think you will find that the bees fly out from the chaff hives in the same way. These, never returning, are lost sight of, and of course do not figure very largely in the eyes of the beekeeper, on the death-list."

While I admitted this, it did seem to me there were more, perhaps, than we usually lose in that way on summer stands. I say "seem," because I am not sure about this.

The dinner-hour approaching, Mr. Boardman closed up the windows, darkened them, and closed all openings except the door to the entryway A, shown in the diagram above. As we stood before the building I said to Mr. Boardman, "It is not yet quite clear in my mind whether you open that door to give ventilation or to lower the temperature, or to do both."

"Bottom ventilation to the *hive* is all that I regard as important. I open the door simply to lower the temperature of the repository."

"But," I said, "don't you have a sub-earth ventilator of some kind to the building?"

"I do not see what need I have of one. As I only want to lower the temperature, I can do it by a door or window a little better, perhaps, than to let the air become warmed under ground a little before entering the compartment."

As we were entering the house, I told Mr. Boardman that I should like to take the noon train.

"Oh, no!" said my host. "You had better take the evening train."

Having enjoyed my visit so far, it did not take very much persuasion on his part and that of his good wife to induce me to remain over a little longer. Besides, as he had promised that he would take me out to his out-apiaries I did not feel like resisting very hard. After dinner we went out to the barn, where Mr. Boardman had three horses, one of them being a family horse, and the other two devoted exclusively to the bees, in going to and from the out-apiaries. Very soon we were on our way, on a brisk trot, to one of his east apiaries. After going about a mile and a half we came to a piece of land belonging to Mr. Boardman. An old schoolhouse on this plot of ground had been converted into a winter repository. Like the one at home, it was an up-ground structure. The walls were 14 inches thick, and frost-proof. This building had only one compartment, which communicated with an entryway, and the latter to the outside. My friend then brought something like a dozen colonies, selected at random, out to the light, for my inspection. They were all in most excellent condition, and the weak ones seemed to be doing about as well as the strong ones. As before, I noticed dead bees on the floor, but not to the extent that they seemed to be in the winter repository at home. After closing the building we started for an out-apiary some two or

three miles further east. Of course, we talked all the way. I asked him if he preferred up-ground repositories rather than a good cellar.

"I prefer them simply as a matter of convenience," he said, "in carrying bees in and out. I do not know that the bees will winter any better in one than in the other. We are now going to one of my bee-cellars under a farmhouse, where I think you will find the bees wintering as well as in either of the other repositories."

In a short time we arrived at the place in question.

"This cellar," said Mr. Boardman, as he opened the door, "is one that I partitioned off."

As before, Mr. Boardman and I examined the colonies at random, and found them to be in good condition.

"Now," said he, "here is one colony that I put in by way of experiment. I do not know how they will winter. It was very weak, and I thought I would put it in just to see how they would winter."

Turning the hive up we could detect no signs of life. He set the hive down again and lifted up the cover, and, lo! every thing was as still as death. When I came to examine the size of the colony I was not very much surprised myself. There could not have been very many more than 200 bees, even at the outside, in the cluster; but the evidence seemed to point to the fact that they had only just died.

"Ordinarily," said my friend, "we unite such weak ones; but as a general thing we can winter weak colonies—that is, if not too weak—as well as we can strong ones." After putting the hive back in its place, he continued, "You will notice the cellar is very dry. Some beekeepers claim that they could winter bees in a cellar 'reeking with dampness,' if only the *food* were right. I am not so particular about the food, but I am particular about a dry warm place."

All of Mr. Boardman's bees, as he subsequently told me, were wintered on whatever stores they happened to have in their hives. If the food is well ripened, the colony not too weak, and the cellar dry and warm, he does not worry very much over probabilities. While he can and has wintered bees on honey-dew he prefers the nectar of flowers. As we stepped out of the repository Mr. Boardman said, "Here at this apiary I employed an inexperienced boy. I should have had more money in my pocket had I paid him the wages I did and had him stay at home. He made enough muss and trouble to more than offset all the good he did."

Mr. Boardman prefers a man grown—one with sufficient maturity of judgment to do what he is told to do.

REBELLION

BY GRACE ALLEN

Nay, nay! poor bee, why do you sting me?

Why in fury do you fling me

All the poison and the passion due a cruel and hated foe?

I think—I think, my little bee,
If you could dream, if you could see
The kindness at the heart of me,
You would not strike me so.

Perhaps I too have struck out blindly
When a large Hand, moving kindly,
Has laid along my little life an aim I could not know—

Great ends that God and life had planned,
Too great for me to understand;
I wish now I had loved the Hand
That bent so near and low.

A CITY BEEKEEPER WHO PACKS FOUR HIVES IN A WINTER CASE

BY CHAS. BOWDEN

You ask in your editorial, page 665, Oct. 1, "Are there any city beekeepers who can beat the record of Mr. Geo. Gautner?" As I might modestly claim to have done so I take the liberty of sending the enclosed view of the little apiary under the apple-tree. The colonies are packed for the winter in "fours." The cases were put on the last of September.

I got 6500 lbs. of honey from 27 colonies, spring count, last year, counting gross weight in 5 and 10 lb. pails—also enough to winter them without feeding.

The best previous average was 55 lbs. I attribute the increase, first, to the excellent year; then to the fine Italian stock I have; and then to the method of wintering. I did not take off the winter packing till just before the clover. They built up early and strong, and I had a hard time keeping down the swarming. I had six that swarmed in spite of all. No. 23 swarmed and got away, as did an after-swarm. It must have been the number.

The apiary is about five minutes' walk from the market in a city of about 25,000 people; but it is well isolated at the back of the lot. On each side there is a large barn, at the back a stream, and a patch of tall corn in front. The neighbors are very seldom if ever bothered. A goo' neighbor was stung once, but she didn't mind it much.

There is a large amount of willow at the

back from which the bees get very early pollen and nectar. They get the pollen from a yellow willow, and nectar from a greenish kind. It's a treat to listen to the bees working for nectar before the leaves are well out in other trees.

I increased to 44 colonies by taking the sealed brood from two hives and introducing



Chas. Bowden's apiary packed, four hives in a case, for winter.

a laying queen. This was done the first part of August, 1913, after the white clover, and I secured good rousing colonies by winter.

I made a steam-heated honey-knife last year in my spare time. It worked like a charm. I used a 10-lb. honey-pail, with a nipple soldered on the lid, for a boiler, and a yard of nursing-bottle rubber tube to convey the steam to the knife. It seemed as light as the regular knife, and worked twice as well.

SUGAR SYRUP VERSUS HONEY FOR STORES

BY L. W. WELLS, SR.

I supposed that this question of feeding sugar syrup had been thrashed out by Dr. Miller, Mr. Byer, and others, to the satisfaction of all concerned; but after reading J. E. Hand's article, page 858, Dec. 1, 1913, I am compelled to add my mite to the discussion. The past three years of my life have been spent in the study of the bee and

every thing that affects its life. Oregon has given me rare opportunity to study some things that do not usually accrue to the beekeeper who has a fairly steady honey-flow and a sufficient amount to insure plenty of winter supplies at all times.

I am one who believes that a pound of sealed sugar syrup is the equal of any pound

of honey that was ever stored for any purpose for which a bee ever uses honey. Queens raised on this syrup, and fresh pollen, have so far given a better life-average, are nearer all perfect queens, than any I have been able to raise on stores gathered from flowers, while the workers thus raised are hardy, and can stand spring grief to the equal of any worker ever raised.

There is a great difference in the way the work is put up to man or bee as to whether the result is profitable or not. Now, in the case cited by Mr. Hand, where 8 or 10 parts of water was used to one of sugar, and fed in the open, I cannot conceive of a more disastrous condition imposed on bees than to be tempted to convert this slop into a suitable food. I will try to give a parallel case with man instead of the bee, from which we can draw the same lesson. Bread is the staff of life with man, composed largely of flour, a little yeast, salt, and a reasonable proportion of water to make a stiff dough to which the right amount of heat is applied in the right way, and the result is a wholesome food. But suppose we have the same ingredients except that we increase the water to 8 or 10 parts to one of the other ingredients, and apply the same amount of heat, and try to keep life in a man for the period of three months with the resulting compound, or expect him to be the equal in strength of the bread-fed man, and, further, expect him to labor as the equal of the man normally fed. It sometimes appears that we expect unreasonable things of our bees—things that we could not or would not do if we were a bee.

Then our friend has overlooked the "bet" again when he holds up the "inversion" of the syrup as weakening to the bee, and carries the idea in his article that the nectar of flowers is not inverted, or that this kind of work weakens the vitality of the bee in the one case and not the other. I believe that the nectar requires just as much albumen when gathered from flowers to invert as in the case of sugar syrup; and in the case of candy made from sugar there can be no difference. Then why should this operation be so debilitating to the bee if done in the most economical manner? I take a common black iron bread-pan that will hold at least half that I wish to feed to a colony, an empty super, two sticks $\frac{1}{4}$ inch thick. Going to the hive I take off the top, put on the super, lay the sticks across the frames, set my pan close to one side, pour in syrup till the pan is full, and cover the top of syrup with a thin wooden float. Then 48 hours later a normal colony will be ready for the last half, which will probably re-

quire five or six days to store, as finishing and sealing of the cells takes more time than the first simple storing. Two weeks later this will all be capped in a normal condition. The syrup used is from the best cane sugar, in parts of about $2\frac{1}{2}$ of sugar to one of water. A straight-sided vessel should show a little more finished syrup than there was bulk sugar before mixing. The consistency of the syrup is very important; for as soon as one gets the syrup where it will not congeal into a coating of hard candy on top when allowed to stand for an hour or two, the bees will store and seal it immediately; while if too thick they find the transfer a slow process.

Then if we should use honey thinned, as our friend thinned his syrup, would not that be just as debilitating to the bee, and just as disappointing?

Then, again, life provides as the acme of its predestination in the species, that, in the cycle of the generations, they perpetuate their race in the highest possible manner and degree, and then pass from the stage of action to be succeeded by their progeny. It is a well-known fact that, the busier their life, the nearer perfection they reach, and bees are no exception to this law.

With rare exceptions I know of no reason for feeding bees but the want of stores; and where there is a fall flow in August and September there is seldom need; but where there is not such flow, is where it taxes all the resources and knowledge of the apiarist to put his bees in condition for profitable wintering and a honey crop next year. Bees raised in July and August have a very short working life, possibly 30 days, being raised under congested conditions, while from September on they have a working life of 54 days' average. Under such conditions, if there is no fall flow, and colonies breed freely during July and August, and fill the hive with bees, they exhaust the stores and do not breed in September, but prolong their life by going into the comatose condition that enables them to prolong their life until the first part of the ensuing year, and no doubt many of them thus live until they are taken out of the cellar, when thus wintered, only to furnish victims for spring dwindling; while on the other hand the colony that filled the hive with stores and reduced the brood-nest at the close of the honey-flow will have sufficient brood-nest by September to raise a populous colony of long-lived bees, and plenty of stores to winter them still on hand. I can find no more profitable way to handle the first-mentioned class than to give them, the first of September, 25 pounds of cane sugar in the manner

I have described, and force them to use up their vitality so they will die by November 1, and not go into the winter cluster, as they form nine-tenths of the bees that straggle out on the combs to freeze and winter-kill. They are always restless and looking for trouble. I further find that brood-rearing exhausts these bees faster at this time than the transfer of stores; and the feeding at this time will always lead to the rearing of brood sufficient to winter in the best of condition for spring work, and we have used the profitless bee to the best advantage, for we have made them fill the home with stores prepared for winter, raise a new

generation to meet the rigors of the coming spring work in the prime of life, otherwise they would be useless consumers of stores, to die just when most needed. We find bees that use the syrup take fewer cleansing flights to maintain their health than when they use natural stores.

Since reading Mr. Hand's article we have induced a colony of golden Italians to store 20 pounds of sugar in seven days during weather so wet they could not fly, and that without the loss of a dozen bees; and we are going to watch the effect, though we are not worrying about their dying.

Grant's Pass, Ore., Dec. 26, 1913.

WINTERING IN AUSTRALIA

The Value of Packing and of a Sheltered Location

BY MAJOR SHALLARD

I had occasion in October, 1913, to visit some of my out-apiaries to examine the colonies and see how they had come through the winter. I never before saw such a striking instance of the value of packing bees down warm for the winter. It is, of course, customary for the apiarists of the Northern States to give all sorts of protection for winter; but it is not in Australia, and I think I could safely say that most of the bees are left on the winter stands in much the same state they were in all through the season. The locality where these farms are is the western district of New South Wales. The temperature falls to the freezing-point, and sometimes below, and there are occasional falls of snow; but some winters there is none at all. The cold wind (that is, the damaging winter winds) come from the west. I am mentioning these details to explain what winter conditions and drawbacks the bees had to combat. All the bees in this district had suffered during the previous season from a pretty severe attack of "nosema apis," or, as it is generally known, "bee paralysis," and they had gone into winter quarters weak, although some apiaries were stronger than others.

The first two apiaries visited were two miles apart, and consisted of thirty or forty hives respectively. These had gone into winter quarters weak, having about two frames of brood, and were short of stores. They were fed half a ton of honey, which was only about half what they should have had; but it was decided to chance it. They were packed, but only on the top, with two thicknesses of corn-sack, thirty thicknesses of newspaper, a sheet of tin, a flat board

top, one inch thick, and a stone on top to keep all in position.

The thirty-hive lot opened up in fine condition with the exception of one hive which had a queen and only about fifty bees left. The rest would average about three frames of brood; and, although they had eaten all of their winter stores, they all had plenty of new honey in the combs, and some of them were just beginning to cap a little of it. It was very pleasing to have them open up in so much better order than was expected.

A visit was next paid to the forty-hive lot. These, although packed just the same as the others, were in nothing like such good order. They were breeding well, although not so forward as the first lot, but they were literally living from hand to month, having hardly an ounce of surplus honey in any of the hives.

I commenced to look around for the cause of this, and concluded it was because they were in a position where they got a lot of strong winds from which they had no protection. They are being moved to a more sheltered position, and, no doubt, will do better.

Some eight miles away was another apiary of eighty hives. These had been in such good condition that they were left with the top boxes on, and not packed at all. They had plenty of honey on going into winter quarters, and a fair amount of brood and bees. They were opened up through the winter, and found to be out of stores, and they were fed forty tins of honey. On being opened in the spring they were found to be in very bad order. The first four opened

had died out, and the rest were weak with an occasional strong one which was doing very well.

The next apiary visited was some six miles further on, and the last one a few miles further away. They were carefully packed for winter the same as the first two. The first one opened up well. The bees were breeding well, and getting plenty of honey to go on with. The last one did not come out at all well. About one-third were dead, one-third alive, but very weak, and the rest with about two frames of brood, though they all had plenty of honey. Even those which had died out had left honey behind. This was a bit of knockout, and set me to thinking why they should do so badly when the other farms only a few miles off, and under the same conditions, did so well. I found the cause of it, or thought I did, in the exposed position. The bees were on a slope facing toward the west, and they had been meeting the cold westerly winds all

winter. The hives which did best were those which had been protected by bushes growing on the westward side of them, and the ones which had died out had had no such protection at all. It was decided to move them on to the easterly slope of the hill, and no doubt in that position they will do as well as the others.

The lesson from the whole thing is this: 1. That it paid well in actual cash to pack the bees; 2. That if the weaker colonies had not been packed they would all have died out, and that, through not packing the eighty-hive farm, nearly forty pounds' worth of honey was used which could have been saved if the bees on that particular farm had been packed the same as the others. The condition of the various farms also showed the utility, in fact, the absolute necessity, of sheltering the hives from strong winds, either by giving artificial shelter or taking advantage of growing bushes.

New South Wales, Australia.

THE WINTER CASE IS WORTH TWO DOLLARS PER YEAR

BY E. G. CARR

A visit to Mr. C. H. Root's yards, near Red Bank, in winter, is likely to make the average New Jersey beekeeper think Mr. Root had not learned that winter packing is unnecessary in such a fairly well-sheltered location, as has been selected for the yards; but he has no trouble in wintering bees without packing, as the term "wintering" is commonly used. His wintering arrangement is not like any thing I have seen before, and deserves particular notice. The preservation of the bees through the winter is not the only object of the winter case—in fact, it is, perhaps, the smallest item in mind in using this case. Bees are not kept by Mr. Root for the fun of the thing, but for the amount of honey he can get from them—nothing else.

By the use of this winter case the bees winter on an average of ten pounds of honey per hive less than is required by the bees in the unprotected hive. Because of this protection, brood-rearing is exceedingly rapid in the spring, so that the bees take advantage of all early honeys before the main flow, which is from alsike clover. Mr. Root figures the extra profit from the use of this case at \$2.00 per colony each year.

The wintering is such that at one yard of over 20 colonies last year there were not more than a pint of dead bees all told in front of the 20 hives in the spring.

This winter case is a double-walled box

with two-inch space between the outer and inner wall, which is filled with ground cork. The cork is used because it can be obtained easily, but other packing would probably be equally effective. No packing at all would be used if the space could be kept perfectly air-tight; but since this is impossible the packing is thought to be necessary. The packing space is entirely enclosed so there is no danger of spilling the packing.

The case is of such size as to telescope readily over the regular hive-body with the hand-hole cleats left off. This rests on a double hive-stand packed with leaves. The hive-stand rests on four stakes driven into the ground projecting about two inches.

On the hive-stand is the bottom-board with $\frac{3}{8}$ -inch rim, and the entrance is contracted to $\frac{1}{4}$ x 8 inches for winter. On the brood-chamber is placed a half-inch inner cover, and over all is a six-inch-deep telescope cover filled with leaves held in by burlap cleated around the sides so that this cover telescopes down over the outer case about one inch. This cover is made of wood, and roofed with paroid roofing. Mr. Root's experience with wood convinced him that it alone cannot be made satisfactory as a roof.

If for any reason the bees are to be examined before time for removing the outer case, it can be readily done with no trouble from loose packing.

New Egypt, N. J.

INTRODUCING QUEENS BY THE WATER METHOD

Sprinkling the Queen and the Bees on Combs with Warm Water

BY T. DWIGHT WHITMAN

A good deal has been said of late in your magazine about the smoke method of introducing queens. For one who is satisfied to work by guess in the dark it is all right; but for my part I want to see what I am doing, and be able to take any queen, either virgin or mated, right from the mails and see her on the frames surrounded with the bees before I close the hive.

"But how are you going to do it?" you say. I have done it often with not a failure except once when, after closing up the hive, I did not leave it alone for at least three days; and when I opened it to see if the queen was laying she was frightened, and ran and squealed, and the bees promptly balled her.

"Well, but how?" All right. We will suppose that I am going to introduce a queen that I have just received through the mails. If I wish to save the queen in the hive in which I intend to introduce the new queen I provide two Miller cages, one for each queen. I have my hive-tool, a lighted smoker, and a dish of warm water and a plant-sprayer; or, in place of that, a whisk broom or bunch of weeds or simply my hand.

Taking the mailing-cage into the house I open it by a window, cage the new queen in one of the Miller cages (which must be without any feed in it), and put her in my pocket so that she will not get chilled. I go to the hive in which I am going to introduce her, and proceed leisurely to find the old queen. When I find her I put her in the other Miller cage with some attendants, and feed if I am going to keep her in it; otherwise without feed if I am going to introduce her in another hive, or simply lay her on top of the frames in her own or another hive without feed or attendants, and let the bees take care of her until I want her.

The old queen being out of the hive it is now ready for the new one which has been in my pocket for from twenty to thirty minutes, and is beginning to get hungry. I pick out a frame of brood that has some open cells of honey near the top of the frame, and arrange to place it in the center of the hive. If the hive is a strong one with lots of bees I start at the outside frame and sprinkle it with the warm (not hot) water on both sides, and do this with all of the frames, reserving the frame I have selected to go in the center of the hive, and on which

I propose to place the new queen until the last. Then, wetting that, I take the queen in the Miller cage out of my pocket and dip the queen, cage and all, under the water a couple of times so as to wet the queen's wings so that she cannot fly. She is then in the same condition as the other bees in the hive. Then drawing the plug I hold the cage up against the frame of brood so that the open end is near some of the open cells of honey. The queen soon climbs out on the frame, and, being hungry, at once sticks her head in one of the open cells and goes to feeding, a space having been cleared for her with a puff of smoke. As the other bees gradually close around her they are so busy thinking about drying themselves that they pay no attention to the new queen. I gently lower this frame in place from its former diagonal position in the hive, close the hive after sprinkling a little more water where I last saw the queen, and the job is done.

I do not disturb the hive for at least three days, or, better still, a week. I can tell from the actions of the bees or by examining the ground outside the hive that the probability is that every thing is all right.

Now, this plan has every advantage that the smoke method has. The queen is introduced without attendants, so there is no risk of disease. There is no lost time, no appliances to buy; moreover, you can do it at any time and see what you are doing.

The amount of water to be used depends on the strength of the hive. With a strong hive where the bees are inclined to be cross I give them a good deal, but usually not more than a sprinkle on each frame is required.

As water will quiet the bees as well as if not better than smoke in most cases, you can in a pinch get along without using any smoke at all, which is sometimes an advantage in the case of replacing a black queen, or when, after a search, you cannot find the old queen by using a queen-excluder and an extra body, and you have taken a couple of frames of brood from the hive that you are sure the old queen is not on, and placed them in the extra body over the queen-excluder on top of the old hive and filled up the rest of the extra body with spare frames. you can introduce your new queen in the same way and hunt up the old queen in the lower body at your leisure.

This method meets all the requirements,

The new queen, being hungry, goes right to feeding, and at once acquires the colony odor; at least, the bees do not seem to know that she is a stranger, because the hive is put out of normal, and they have their hands so full in drying themselves and the hive that, by the time that is done, the new queen is settled down. Even when first

introduced the bees show no inclination to ball her, and the queen is thinking more about getting something to eat than she is of running or squealing, so the bees are more inclined to accept her.

Give this method a trial, and you will have no more use for the smoke method.

Tacoma, Wash.

SOME DIFFERENCES IN LOCALITIES

BY GEORGE W. LOUDER

I noticed what George M. Huntingdon says, p. 215, March 15, also Dr. Miller's answer, p. 244, April 1, which does not answer. The winter of 1903 I was with one of the Somerford boys in Cuba. Down there the weather is cool at night (was cool part of the time in daytime too—weather reports said coolest for 25 years), and flow comparatively light early. Under these conditions we had to extract for the brood-chambers of all colonies, super or no super, or the colonies would have been down to a handful of bees by the time the flow got heavy. In many colonies there would be brood in two or three combs in the center of the brood-nest, and then only a circle five to six inches across in each comb. The rest were jammed full of honey with comb-honey supers or extracted-honey supers on, it made no difference. The last part of the season we did little or no extracting from the brood-nests. As the weather became more settled and the flow stronger, and brood-nests more expanded, the bees showed less inclination to exclude brood with honey.

I have kept bees in two locations in south-eastern Pennsylvania, and am satisfied that the let-alone plan (except in cases of lack of stores) is best there.

In your reply to Mr. Huntingdon you speak apologetically of the use of the word "locality." You need offer no apologies for the word. Location makes all the difference in management. I see Dr. Miller, p. 311, April 15, says the flow began June 6, and closed about Sept. 20. His surplus is, if I understand rightly, from white clover. In the two locations I had in Pennsylvania, covering about ten years, the clover flow lasted from June 1 generally up to July 4, sometimes until the 15th. We used to say, "When the farmers cut their hay the honey-flow is over."

In Chester Co. we had sufficient nectar from sumac to enable the bees to finish partly filled sections if looked over in time. In Montgomery Co. there was no sumac near me, but sweet clover enough for the

same purpose. Some years, with a little flow from Spanish needle, there is enough to keep brood-rearing up, and get some baits drawn in supers, but seldom any surplus. Both places gave sufficient fall flow from asters, etc., to fill up the hives in good shape for winter. Last summer, while on a visit up there, the bees were storing in August—a very unusual thing. Here in South Delaware we have a flow generally in August and September, and usually some surplus is gathered. These few facts will be enough to let the word "locality" out.

THE INCOME OF A BEEKEEPER.

Mr. A. C. Miller says a man able to manage a commercial yard and market the product should be able to earn at least \$5.00 per day in any one of several different lines.

All of us will agree that the beekeeping fraternity are, taken as a whole, as wide-awake and up to date as any branch of rural workers; but I am here to tell you that the \$5.00-per-day men in their ranks, if the capital invested in the bee outfit were suddenly to be lost, and they were forced into other work aside from bees, are not so very numerous. Mr. Miller does not say in what line they could capture that \$5.00; and for my part I don't know. I know there are some old timers who run large numbers of colonies and sell the output at some price who cannot write a correctly spelled or grammatically correct letter. Of course, some are good salesmen naturally, but without training save for the little honey-selling a few weeks in the fall, and there are salesmen in many lines who do not get \$30 per week.

Frank Somerford made from \$125 to \$200 per month in the detective business in Cuba before he had bees enough to keep him busy. He was an unusually bright, well-informed, well-educated young man, holding at that time a first-grade teacher's certificate in Texas, and having had experience as a bank clerk. He was also familiar with Spanish. I have met a good many beekeepers, and

would say that, where one would measure up to Somerford in education and ability, five would not. I guess there are more \$1.50 than \$5.00 men. The editor speaks of a large producer who says he can get all the men he wants at \$1.50 per day. Well, let some misfortune take from him his bees, and let him enter another line where the other man furnished the brains, where would he be but in the \$1.50 class?

BEES CARRYING SAWDUST FOR POLLEN.

They have been nosing around on the chips at the woodpile all spring, and to-day I saw quite a number flying excitedly around some heavy oak sticks four or five inches across, and six to eight feet long. You don't suppose they will feed them to their brood, do you? May there not be some acid or juice in wood that they need?

Georgetown, Del.

BEES WINTERED ON CANDY ALONE

BY O. S. REXFORD

Last fall I promised to take away all honey from a colony in order to winter, or at least try to winter, with the Miller candy only. Accordingly, November 12, I put bees from one colony on frames entirely empty—no pollen nor honey. Over the frames, so that the bees could get it readily, I put 15 lbs. of the candy, packed them up, and left them for the winter.

About April 1 I examined the bees, found them in good condition, brood started, and what appeared to be liquid honey in the cells near the brood. At this time I gave them one frame containing pollen but no honey. There was about 5 lbs. of the candy, which seemed dry and hard.

I did not go to the hive again for about ten days, and then I found the bees had absconded—no dead bees, hive clean and dry, and four or five pounds of the candy.

When I decided to experiment with candy feeding I asked a friend and expert beekeeper, Mr. S. E. Bunnell, President of the

Connecticut Beekeepers' Association, to try also the candy feeding, and I send his report with this.

REPORT OF S. E. BUNNELL ON FEEDING MILLER CANDY FOR WINTERING BEES.

November 18 I took all honey from colony No. 10; gave them 26 pounds of candy. November 18 I gave colony No. 11, which was short of stores, 18 lbs. of candy. March 8 I examined my bees; found both colonies in good condition. No. 10 seemed in extra good shape.

April 10, a warm day, I took out frames of No. 10; found them strong in bees, very few having died; three frames of brood, liquid honey above the brood; about 5 lbs. of very hard candy.

At this time I gave them honey in two or three frames, about 8 lbs. in all; also one empty comb filled with rye flour.

Colony No. 11 was also in good condition.

From this time on, both colonies remained as good in every way as the average in my yard. But this is not saying much so far as section honey is concerned.

My average at this time is only about 20 lbs. per colony.

April 12, 1914.

S. E. BUNNELL.

Winsted, Ct.

THE HARD CANDY MELTED AND RAN DOWN THE COMBS

BY F. J. LEE

To make hard candy for winter stores, I think the beekeeper must be a professional candy-maker as well as beekeeper in order to make a success of it. I saw the recipe in GLEANINGS, and as I had seven colonies that I knew were light in stores I got my wife to help me. We put on a kettle of sugar and water, and some strained honey. We boiled it until it would get hard in cold water. Then when we poured it out it was a nice amber color. We filled up the kettle again as before, and boiled and boiled. As I thought the first batch was not hard enough we emptied it back into the kettle and boiled it some more. It had the nice amber color; so that much, I knew, was

right; but the second batch I thought was not hard enough, so we put it back in the kettle and cooked it until bedtime Saturday night, when it was put out in the summer kitchen to cool and harden.

Monday morning I broke it up and put it on top of the frames of seven hives. I slept well every night for a week, thinking my bees were enjoying their nice amber-colored candy. A neighbor who has a few hives in my cellar came in, and I told him about the nice amber-colored candy I had made for my bees, and invited him down to see the grooves they would have cut in it by that time. I lit the gas, took off a cover, and, lo and behold! the candy was gone,

amber color and all. I had put clean bottom-boards under them, and you would be surprised to see the number of bees that went down with the candy.

In the next issue I saw a picture showing how a man wintered bees on loaf sugar. I went to the village and bought all the loaf sugar the store had—25 lbs. I thought the bees could not get their feet tangled with that, as it was very hard and coarse. I got

the kettle out again and put half a gallon of extracted honey in it. I heated it hot, put in some of the loaf sugar, stirred it around, then skimmed it out to drain, but it did not drain. What honey was on it went into the hives. It seems to me it will make an excellent bee-feed. However, if it does not feed them it will not kill them.

Lee Valley, Ont., Can.

SUNDRY ITEMS

The Detection of the Swarming Impulse; 1915 Prospects; Crop Reports; Why Paint Blisters on the Hive

BY R. F. HOLTERMANN

On page 574, under the heading "Notes from Canada," our old friend Mr. Byer touches upon the detection of the swarming impulse; but he does not leave us any wiser as to how to detect from outside appearance the swarming impulse. Others have claimed their ability to do this, but thus far no one has told me in a satisfactory way how it is done. How? I still doubt the possibility of doing this in a well-managed apiary.

Then in connection with this subject he states, "I rough it alone mostly." Now, friend Byer, is that not a little hard on that son of yours? yes, and on your other family help? In my own apiarian work until last year I have quite decidedly set the pace for my help, and did more than any one else during the season. For the past two seasons I have taken an unusual number of students because I have had what appeared to be an abundance of good material to pick from, and this season being an off season, I have not done so much; in fact I could have got along nicely with half the amount of help. Yes, we did look at every colony once a week for four weeks (June 12 to July 12). Generally the time covered by this inspection is six weeks. In future, however, I may try to examine colonies for the swarming impulse, according to Dr. Miller's suggestion, every ten days. However, the eighth day gives us always a second chance to detect queen-cells before the young queen hatches. With the ten-day system there is only one chance.

* * *

THE 1915 SEASON.

I quite agree with Mr. Byer that the outlook for 1915 for this province (Ontario) is none too good. Most, if not all, of the young clover in my section has been killed by dry weather. Last night, Aug. 10, we

had the first good shower we have had for a long time. Now will be the proper time to publish widely the returns to be obtained from keeping bees in Ontario; but just now those who have been so zealous in supplying items for the press as to the profits in bee-keeping appear to be busy with other matters. Perhaps they are dodging about to keep their heads from being struck by brickbats from the hands of people who started beekeeping on the credit system.

* * *

CROP REPORTS.

Since sending a report of the honey crop for Ontario July 10, the basswood flow has come and gone. The bees have, where opportunity was offered them, drawn on the supers to feed the immature brood and themselves, this being necessary owing to the complete cessation of nectar gathering that has reduced the expected surplus. Again, some were over-sanguine when they reported, as now the surplus in Ontario will average per colony, not 30 lbs., but nearer 15 lbs.

Then there is the winter feeding to be done. I have 150 colonies marked as requiring immediate feeding, and let me whisper to you I have had one twelve-frame Langstroth starve to death already. So much for the amount of honey a good queen allows the bees to store in a twelve-frame brood-chamber. I expect to use 150 bags of sugar for winter feed.

* * *

WHY PAINT BLISTERS ON THE HIVE.

I feel quite sure it is possible for moisture to pass from the inside of a hive through the board, and collect in a blister between the paint and the board separating the two.

I have seen this in hives used for some time. This was with single-walled hives; but although more difficult I see no reason why it could not take place with a double-walled hive. I have no doubt that in the case mentioned by Mr. Kaufmann, page 606, GLEANINGS, the water went through in the same way.

Having seen such blisters on several occasions in the past, I have felt for years that so far as the welfare of the bees is concerned, they would be better off with unpainted hives. This would make Dr.

Miller's contention quite right; he advocates unpainted hives. I have, however, not been able to reconcile myself to unpainted hives—no, not even unpainted supers.

HONEY IN WAR.

At a Rochester, N. Y., beekeepers' convention I heard it stated that the German soldiers received honey as part of his daily ration. If this is the case there must soon be a shortage of honey.

Brantford, Canada.

BEES AND "MOVIES"

BY FRANK BROOMALL

Is a moving-picture parlor a dangerous place to visit? Are you liable to inhale or become inoculated by disease germs? Let me give my experience. My vocation keeps me indoors mostly; but this particular year was rather dull in my line, and I found myself with considerable time on my hands. One evening I stopped in a "picture" house near my home, and during the course of the show a film was shown of all the important work of the apiary, or at least nearly all, such as the manipulation of the frames, the hunting of queens, including a greatly enlarged close-at-hand picture of the frame with the queen on it; also extracting honey, swarming and hiving, packing comb and extracted honey; and last, but not least, the consumer enjoying buckwheat cakes and honey for breakfast.

Again the question, "Are picture houses filled with germ-laden air?" I answer, decidedly, yes! at least I came from that place with a well-developed case of bee-fever, and the good wife has since pro-

nounced it hopeless. Honest Injun! I believe she is catching it herself.

The morrow found a card on the way to the Department of Agriculture, Washington, D. C., and before the end of the next week I was eagerly devouring the information contained in the Government bulletin entitled "Bees."

Event followed event in rapid succession as the disease reached the fever heat. The name of the secretary of the nearest beekeepers' association was procured, and soon I was in possession of a full colony of golden Italians. Since then I have experienced the various delights well known to beekeepers. I have made increase by both nucleus and the Alexander method (I prefer the former), have raised queens, and, the most pleasing of all to a beginner, is the harvesting of the first pound of honey.

I find myself a living reality of the picture I have told you about—"buckwheat cakes and honey for breakfast."

West Philadelphia, Pa.

NOTES FROM GERMANY

BY J. E. HEBERLE, B. S.

FERTILE EGGS IN DRONE COMB.

Inspector Hoffmann reports that he received from Lehrer Schneider a piece of drone comb from which perfectly normal worker bees emerged. This drone comb was from a colony that had ten large combs—larger than the Langstroth frames, which had only small patches of drone comb at the corners; all the rest was good worker comb. So far as I know it has never been recorded that a queen, when there is but little drone

comb in the hive, and ample worker comb, would lay in drone-cells fertile and unfertilized eggs.

ORIGIN OF FORMIC ACID IN HONEY.

Is formic acid produced in the body of the bee, or is it derived from the oxidation of sugar? Muellenhof asserts that the formic acid comes from the sting and poison-gland of the bee. Prof. v. Planta is of the opinion that it originates in the salivary

glands of the head and thorax. Dr. Reidenbach does not believe that formic acid originates in the body of the bee, but holds it to be a product of oxidation of sugar. Dr. Merl, director of the laboratory for food analysis in Munich, after extensive investigation, thinks that Reidenbach's theory is probably correct. Dr. Merl asserts that during winter neither head, thorax, nor abdomen contains even a trace of formic acid. He will continue his investigation in the near future on field bees—bees gathering nectar.

* * *

INSTINCT OF SELF-PRESERVATION IN BEES.

R. made in July, 1910, an artificial increase. He used the queen and brood from an Italian and older bees from a black colony. In August the weather was bad—the colony was short of stores. One day a bunch of black bees were found dead in the rear of the hive. No doubt the Italians had crowded or pushed them away from the combs containing the rest of the stores so they died of starvation. It was not race hatred nor enmity, but limited stores that prompted the bees. The old bees could be easily spared. Self-preservation prompted the bees to free the colony from useless consumers on account of small stores and nothing coming in.

The same thing was observed in 1912. An Italian colony that had swarmed in June had a very fertile queen, consuming considerable stores to rear brood. In August the young bees pushed the old ones away from the combs that contain a little food on to the empty combs in the rear, where they would soon die of starvation. When the cover was taken off the old bees rushed out, but were refused admittance between the other frames, and the entrance was also securely guarded against them. Some of the old bees had already died from exhaustion and starvation. This colony was fed, and the old bees at once received their freedom and access to the stores. The death-sentence was magnanimously set aside as soon as the colony was fed and the fear of starvation removed.—*Muenchener Bienenzeitung*.

* * *

BEEKEEPING IN TUNIS.

Mr. Becker writes that the bee is as black there as the black bee of the Continent. He asserts that this Tunisien bee visits flowers, and that the bee of the Continent does not, and concludes from this that the Tunisien bee has a longer tongue than the European races. It is simply astonishing the quantity of honey it gathers. [This depends probably on the profusion of nectar that each

blossom secretes.] He thought first that this Tunisien bee swarmed more than the black bee of the Continent, but finds now that it does not. With the Arabs it had to swarm on account of the limited space given them. A cylinder made of reeds about 40 inches long and 8 inches in diameter is used as a hive. Mr. Becker is in charge of an apiary of 500 colonies. They rear queens the year round, but sell only the best of them. He says it is a pleasure to keep bees there, because they have a good honey-flow ten months in the year.—*Leipziger Bztg*.

* * *

BEEKEEPING IN THE ARGENTINE REPUBLIC.

A French beekeeper writes in *Apiculteur* that the movable-frame hive is hardly known there. The swarms are hived in boxes with an entrance in the front and rear. Besides, it has usually a dozen or more cracks and crevices which permit a free entrance to the bees and their enemies. Frames with foundation or pieces of combs are not used in these boxes. The bees build at random in any way they wish. If the owner notices that the bees have some honey in the box he takes it out by using a great deal of very strong penetrating smoke. He waits until the bees have honey again, and then repeats the operation. This robbing of honey and hiving the swarms is about all the native beekeeper does. This French beekeeper has now 170 modern hives. The first year his crop was 7700 lbs.; the second, 15,000 lbs. from 100 colonies, and the last year, from 170 colonies, 24,000 lbs. The pasture is very good; a large part of the land abounds in good bee-plants. The best is alfalfa. He has 600 acres of it. The honey-flow begins in July with the fruit bloom, and lasts until the rainy season begins in March.—*Rhein. Bztg*.

* * *

THE POLITEST BEEKEEPERS IN THE WORLD.

The Chinese are polite toward everybody, especially the bees, because they have a queen. They don't want to kill a queen—not even insult one. If he wants to take honey from the bees he begs them to give him some from their affluence, and says: "You have your house filled with sweets while we have only paprica and bread to eat." At the same time he makes compliments, and burns sweet incense. The bees retreat on account of the smoke. The tailed beekeeper interprets that as assent to his polite request for honey, and cuts out the filled combs. Honey is comparatively expensive in China, and principally used for medicine.—*Illustr. Monatsbl.*

Kempten, Bavaria, Germany.

Heads of Grain from Different Fields



THE BACKLOT BUZZER.

Be the fellow who started the story about the bees being a nuisance at the watering trough, where the live stock come to drink, didn't linger long studyin' the problem. He went on to town to do his drinkin'.

Does the Use of Thick Foundation in Sections Injure the Sale of Honey?

For the past eighteen months I have been a citizen of Philadelphia. Last winter I wanted some honey; and one night on passing a retail produce house I saw several beautiful-looking 4 x 5 plain sections on display. The price-card read 25 cts. per section, as they were not sold by weight. I learned afterward those sections averaged 14½ oz. from a lot of two cases. On inspection I saw the producer's name on each section, which told me the stuff was true to name, and a first-class article. I purchased one. Next morning at breakfast I sampled the honey; and so far as that part is concerned the liquid was really first-class. The producer used full sheets of foundation in those 4 x 5 plain sections, however, so the midrib was so tough it would not crumble under the pressure of a knife. The use of this foundation made the honey any thing but inviting. To get the honey I placed the whole business in a small tin, and slowly heated it to separate the wax, etc.

I tried other places in this part of the city, but could find no section honey save that which was produced on full sheets of foundation, so I gave up and did not buy any more. I went among the people I have met while here, and others I do not know, making an inquiry into the cause of people not buying or using more honey. The man running the produce store is a very nice fellow, doing an honest business so far as I know. These inquiries proved

to me that people earning under \$20 per week refused to buy honey on account of the price—25 cts. is altogether out of their means, considering the small amount obtained for the quarter dollar. Personally the same feeling caused me to leave it alone, simply from the fact of the nasty way the surplus wax has of holding the honey. I find the majority of people do not like the wax, and refuse to buy honey on this account. This factor has much to do in spreading the idea that comb honey is manufactured, especially when this wax business proves it. It is surprising to find how many people here in the city have friends or relatives out in the country, and, when sojourning there, they invariably get honey to eat; and I want to say they hardly ever, if ever, get honey in which the wax does not crumble into minute particles when gently mashed with a knife or spoon. Is it any wonder these people think comb honey of the city a fake, after having become acquainted with an article made without foundation? These same people know that beekeepers buy "manufactured" wax in large quantities. They are also acquainted with the hundred and one fakes employed to get their money for any thing needed for the home, and thus it is most easy to associate the use of too much foundation in comb honey as one of these tools to get the advantage of the consumer.

Therefore, brother beekeeper, I want to register my protest against using full sheets in sections. To continue its use renders the matter of fact in attempts to increase consumption of no account. At least it is discouraging to see a really fine honey stored in a surplus of wax. The idea that bees "thin down" the base or midrib in foundation is more theory than practice, if my experience has not been wrongly conducted.

RALPH P. FISHER.

Philadelphia, Pa.

Feeding Syrup for Winter Stores Before the Fall Honey-flow

Last winter I placed a plate of syrup over the brood-frames with a Hill device directly over it, which kept the chaff-tray away from it; then I put some excelsior in the syrup to prevent the bees from drowning. If I were going to follow this plan right along, however, I should rather have some dishes made to conform to the shape of the Hill device.

By measuring the Alexander feeder I find that it will go inside an empty super if I want to use it for feeding after the chaff-trays are taken off.

After the main honey-flow is over, and as soon as a drouth or honey dearth comes on, I propose moving all supers so that no syrup may reach the sections, and then feed enough syrup so that the combs will contain enough stores for winter. The bees will then be ready to store the buckwheat and other fall honey directly in the supers again.

Wheelerville, Pa.

MRS. SUSAN E. ALLEN.

[We would not advise the plan for the bees would surely move some of the syrup up into the supers.—Ed.]

Hard Candy Too Hard to Make

That snow blizzard at Medina, Nov. 9, 10, was no more worthy of recording than our snow blizzard in southeast Oklahoma, to-day, Jan. 30. Our 19 hives of bees are banked high on all sides except southeast, where the escaping warmth has melted the snow and left the entrances open. Our bees are in fine order because I have closely watched and liberally fed them, and because they have just had nine days of pollen and honey-gathering. Strange as it may seem, with snow everywhere now, day before yesterday the bees gathered honey and pollen all day.

My last feeding was after reading of the hard candy method given in GLEANINGS for Jan. 1, and I can say it was not at all satisfactory with me because on examination after feeding the hard candy I found the bees letting it alone. It proved to be so hard that I removed it and fed them my own way, which is so simple and effectual that I have never been able to improve on it. I prepare the feed by working pure granulated sugar into a smooth stiff dough with as little water as possible. Then to feed, I put a batch of this on three or four thicknesses of paper, giving each colony what it needs. I smoke the bees down a little from the tops of the frames, and place the feed directly over the cluster; then I push a long-bladed knife through sugar down between the frames in one or two places; turn up the edges of the paper, put on oilcloth, and then they are fed. I have taken out sugar prepared this way weeks after, and found it a nice soft case, the bees eating as they wanted it. I think the dryness of the air here is the cause of the candy becoming so hard.

We have ten-frame hives, all hand-made by myself. I agree and disagree with W. L. Porter (GLEANINGS, Nov. 15, 1913). If the beginner has ready cash and can get factory-made supplies without unreasonable expense, freight, etc., and knows what to get, all right; but if not, and he can get lumber cheap, and is determined to make a start, go ahead; make supplies and keep bees. I have never had first-class supplies, but have always made some profit.

Valliant, Okla.

FRED MYERS.

[There have been some other complaints in regard to the candy being unsatisfactory, but never because it was too hard, always because it was too soft. We are pretty well convinced, now, that, while the candy such as we describe is all right when it is made just right, nevertheless it is difficult to get it exactly the right consistency. We ourselves are having quite good results from the hard candy with the exception of some cases where it grew too soft.—ED.]

Small's Candy Given a Test

The severe weather in February and March caused quite a large number of colonies to die. They flew almost every day until Feb. 7. I tried candy for feeding, as per A. V. Small, page 141, Feb. 15, as late as March, and found it a success. It is easily and quickly made, and I recommend it to any one needing feed as a first-class feed, and one that fills every want of the bees.

Wading River, N. J.

S. POWERS.

Less Water in Making Hard Candy

Regarding the time required to make hard candy for winter feeding, it requires about four hours of boiling over a hot fire, with equal parts of sugar and water, in lots of 5 lbs. of sugar and 15 minutes of boiling, with six parts of sugar and one part of water. With the thicker mixture, care must be exercised at the start; and in either case the last five minutes of boiling is a critical stage. The quicker method is entirely safe and manifestly cheaper, and a matter of moment if much candy is made.

A. WHEELER, JR.

West Falls Church, Va., March 9.

[We have tried using less water, but have felt that the danger of burning is so great that it is hardly safe.—ED.]

Another Way of Making Hard Candy

I have been reading of trouble in making hard candy. I have followed the candy trade and made hundreds of pounds, so would be glad to help our brother, page 153, Feb. 15. A copper kettle is best,

as it retains the heat. Place sugar with enough water to start, add small amount of lemon juice. When it boils place a cover on same and let boil for five minutes; remove cover, and wash down sides of kettle to get all the sugar off. Place a thermometer in batch, and cook to 315 or 320 degrees. Pour on oiled marble, let cool, run knife under same, and when cold sprinkle with plenty of sugar which keeps it from sweating or dries it off.

Modesto, Cal.

F. F. TURNER.

On Disturbing Bees in Winter

In reference to the editorial, page 84, Feb. 1, giving the article copied from the *American Bee Journal*, I think your summing-up was wrong. I would sum it up like this: Mr. Doolittle picked out the only colony, in his opinion, that was worth buying, and left those that were worth very little with the farmer. The farmer's bees all died. If the farmer's colonies had not been disturbed at all, I wonder if a good number of them might not have been alive in the spring. In my opinion it all depends upon what condition bees go into winter quarters whether they can be disturbed or not.

In 1912 I put five colonies of bees in Danzenbaker hives, doubling up, making one hive out of two. All five were full of bees, and there was from 80 to 100 lbs. of honey in each. These colonies were in my cellar next to the furnace, where we passed them twenty times a day, and disturbed them a good deal more than I had been taught was good for them. Yet they came out of the cellar May 2 and swarmed May 29, leaving the two Danzenbaker hives full of bees and brood in all stages, with queen-cells in both.

This was the mildest winter (1912-'13) we ever had in Quebec. We were able to go canoeing on the St. Lawrence in February. The winter of 1913-'14 was the coldest on record. We had 56 days from 20 to 35 below zero in January and February. I put 15 colonies in winter quarters in the fall in two-story Danzenbaker hives with from 80 to 100 lbs. of honey stored in each hive. They were disturbed in January by moving them into the cellar; besides, we had to bring wood into the cellar next to them with only a board partition between. We had to fire the furnace right next to them. The cellar froze every vegetable in it solid. My bees were without bottom-boards. To-day being fine and springlike we took them out, although it is too early for us. We were anxious to see if any were alive. To our surprise all were alive, and in fit condition to divide, if we had had queens ready to divide them.

It is my opinion that, after two years like these, we can disturb bees in winter quarters and benefit by it, if they are well supplied with bees and honey in the fall—a much greater supply, though, than is generally allowed. Just how much they can be disturbed, I am not prepared to say.

C. A. STEVENS.

Bromptonville, Que., Can., April 22.

A Colony Nearly Destroyed by Mice

Last fall when I put my bees away for the winter I did not turn the bottom-boards, but left the $\frac{3}{4}$ entrance side up, and slipped in the sticks with the $\frac{3}{4}$ by 7 slot, making the winter entrance. Some of the sticks were somewhat loose, and a few days later I noticed one end of one had swung out of the proper place. This did not seem unusual, as there was more or less wind, and I thought the hive might have vibrated enough to cause it. However, this occurred several times, so that I suspected that something was moving them. The fall here was a very open one. Bees flew every day, almost, up till a few days before Christmas. Owing to this I did not put the winter cases on till after Christmas.

When I was ready to wrap the hive that had the entrance stick moved I concluded to look in and see

how the bees were faring. I prepare them for winter by putting on an empty super, putting a piece of bent woven-wire fencing over the frames to make a concave space on top of the frames; then a cushion of burlap filled with leaves on top of that. When I removed the top I saw a little mouse-hole drilled through the side of the cushion. I removed this, and looked carefully down among the frames, then patted the cushion all over, and concluded Miss Mouse was not at home. So I replaced the cushion and put the winter case on. A month later came the first day warm enough for the bees to fly; but on looking over the entrances I saw this particular hive nad the entrance entirely choked with bee wings, legs, and such debris. Well, Miss Mouse was there all right, but it proved to be Mrs. Mouse, and she had her family with her. Such a cosy nest as they had, right on top of the frames at the front end, close up to the cluster. Mice evidently don't care for honey, as they had not disturbed the combs, except for a spot about as big as my hand, eaten down to the midrib on the outside of the outside comb, and it had no honey in it (I forgot to say that I had wedged in the entrance stick at the time of the first examination). They had been fastened in the hive, and evidently thrived on a diet of bees and a little wax for a change, for they were sleek and fat. The cluster of bees was much depleted, though, and I do not know whether they will survive the winter or not. The next time I winter any mice I hope it will not be on bees.

Mannington, W. Va., Jan. 27. D. S. FERRY.

Wintering Bees on the Let-alone Plan

Last fall we prepared our 78 hives of bees on their summer stands, feeding them up for the winter, and packing them with chaff and planer shavings; with no upper ventilation. To-day, May 4, I went through the yard and found every colony carrying in pollen. Almost every colony is strong. I had not looked at the inside of a hive since last fall. This is what I did: I mixed about 250 lbs. of granulated sugar, made into a syrup, with about 50 lbs. of honey to flavor it. I fed this out near the yard in April, using my large feeders, and took part of three days to do the feeding, though I will overhaul each hive soon during apple bloom. Some colonies are clustering out now, and need room.

Lakeville, Ind. C. A. BUNCH.

A Cold Cellar

I did not lose over fifty bees out of two colonies that wintered in a cellar where the average temperature for the winter was 33 degrees. Can you beat that?

Howard, Pa., May 8. CHAS. HEVERLY.

Pollen from Cotton-seed Meal in Midwinter

Last fall all my bees went into winter with about 30 lbs. of aster honey, and with a goodly number of bees, taking the apiaries as a whole. My Golden breeding-yard is $3\frac{1}{2}$ miles south of here; and during the winter one of my neighbors, whose barn is about $\frac{1}{4}$ mile from this apiary, told me that my bees were working heavily every nice day on the ensilage and cotton-seed meal he was feeding his cattle. I fully expected these bees to be weak in the spring on account of so many being lost going after this pollen, not to mention the corn ensilage and aster honey; however, I found that this yard was considerably ahead of all our others—not a single weak colony in the lot. Some at this late date have 14 to 17 L. frames of brood. Nuclei were stronger by one-half the first of April than when consolidated last fall. Yes, some were twice as strong. It's true we had a very mild winter; but does that account for the difference in strength of apiaries?

The way I look at it is, the sap from the ensilage and the cotton-seed meal combined, as this feed was, approaches very nearly the natural pollen as a brood-rearing combination.

Spring Hill, Tenn., April 22. BEN G. DAVIS.

Earthquake in Jamaica Does No Damage to Bees

A violent shock of earthquake accompanied with several lighter shocks occurred in Jamaica on the morning of August 3 at 6:30 A. M. The bee industry, however, was not damaged except in a few apiaries where some of the colonies shifted their position. About half an hour before the earthquake I noticed that rats rushed from the upper story of the house and took shelter in the trees. A few seconds before the first quiver of the earth the fowls all collected together and appeared to be in a great panic. An intense stillness prevailed before the shock, and the hills were enveloped in a grayish mist. During the shock, the earth rocked like a cradle, and one wondered how any building could stand. The trees appeared to be enveloped in a strong whirlwind, and a regular storm appeared to rage during the shaking of the earth. A heavy artillery duel seemed to go on in the air. The earth became an unsafe footing, and one would stagger about like a drunken man, and even the atheist would call upon the Lord for help, for there was no other to call upon.

F. A. HOOPER.

Four Paths, Jamaica, B. W. I., Aug. 4.

Sending Comb Honey by Parcel Post in Tin

I notice what Mr. E. T. Bond says on page 560, in the July 15th issue of GLEANINGS about sending comb honey by parcel post. I wish to say that I am sending out many packages of comb honey by parcel post. I order the square syrup-cans to be sent to me, all made up except that the top end without cap or handle is not to be put on. The end is the same in the top as on the bottom. I cut the comb honey in pieces that very nearly fit the can. With these the can is filled up to within half an inch of the top, and the air-space left is filled with extracted honey. Then the end is soldered on with the ordinary soldering-iron. What is the use of shipping sections whole as long as the wood is to be torn off and thrown away? I have also had tin cans made with a large-sized screw cap. After the can of honey is sealed up, it is put into a wooden box for the mail. Tags are tacked on the side of the box.

Owensmouth, Cal.

C. W. DAYTON.

Feeding with Near Candy

I have been obliged to conserve my time and strength; and, not being satisfied with the feeders on the market, many of which will leak while the entrance and rear feeders are cold, I began devising a method of feeding which would do away with the objectionable features of the others.

My inclination is toward the vacuum feeder; but whether the syrup is thick or thin, a change of temperature in the imprisoned air in the feeder causes the syrup to be forced out; and if the bees chance to be clustered under the feeder many of them are drowned or daubed up.

While making candy I was impelled to put half a pound into a Mason jar with a perforated top, and invert that over the brood-nest. I proceeded to make several degrees of hardness of near candy from a syrup which would just pour at 60 degrees F. to a mass that was really candy. These, five of them, I put in hives, in holes cut in the super-covers, seeing that the surface of the perforated top did not touch the top-bars by a bee-space or better.

The first lot of feeders were put in cold. The result was that the thinner syrups, compared with the candy, were forced out. The thinnest of all, which would pour freely at 60 degrees, was all out of the feeder, but the bees had taken up all but a little which remained on the bottom-board. Part of the next batch was still in the jar, and there was a stream of the candy on the comb. In the case of the third, some had been forced out by the change in temperature, and was on the frames; but the top of the cap was well cleaned off, and the bees were busy feeding.

The other two had been put in cold; but while a portion of the candy was gone from each jar there was none on the frames, and the caps were clean.

I at once repeated the experiment, but put the feeders on warm. No. 1 again ran out and muzzed up the frames; No. 2 did not, but the candy hung down in thin threads, and might in a little longer time have muzzed up the frames. The bees were busy on the three, and the caps were clean.

Being curious to see how the bees acted toward the candy I made a dish of it and put it in the beeyard. The bees soon found this, and went to work on it. There was no excitement, no stopping to clean up after feeding, no scrambling over each other, and no tendency to excite to robbing; therefore I think that a mixture of sugar and water, with a little acid or cream of tartar to hasten inversion, and boiled to make a mass which will barely crawl at 60 degrees F., gives a feed which is available for stimulative purposes inside the hive or out. It does not induce robbing, or else my bees are naturally not inclined that way. It saves a great deal of time and labor, and will "stimulate" just as well as 4 or 6 ounces laboriously given the bees at frequent intervals.

I am inclined to think that a gallon pail filled with this near candy, and inverted over a hole in the super cover in the fall, would be a fine manner of feeding for winter and early spring, in connection, of course, with a reasonable amount of sealed stores. It would do away with the necessity of opening the hives in the early spring by those who winter out of doors; and those who winter in cellars could put on a one or four quart tin bucket, and then they would not need to look into the hive again until they thought the candy was gone. I think that, if the jars were put on quite warm, and well packed, the temperature would equalize, and the supply of feed would be constant and unchanging until the last ounce was gone.

Up to date my last trial was made with a ten-pound friction-top pail, in the cover of which I punched ten very small holes. Into this bucket I put five or more pounds of a candy which at 65 degrees found its own level in half an hour. I do not think a variation of 10 degrees either way in this mass would make any difference in the result. At the end of ten days this pail had lost weight, but I neglected to weigh it. However, the bees were doing well, and there were four frames with brood in them. I purposely chose one of my weaker colonies to experiment with.

Butch Grove, Iowa.

DR. A. F. BONNEY.

Beginner Increases from Two Colonies to Eight

In May, 1912, I bought a small swarm of bees, and had them hived in a moveable-frame hive which I made myself. I ordered a smoker, a bee-veil, a pair of gloves, etc., and as I didn't know any thing about bees they all seemed a curiosity to me. Then I ordered an Italian queen, which I succeeded in introducing more by luck than by my knowledge of the science. It was a very poor season that year, and my little swarm did not increase very much, although I managed to get them through the winter in good condition by feeding them in the fall and

packing the hive in leaves. However, when I opened them the next spring they were queenless, and so I wrote to a breeder concerning their condition, and ordered a queen which arrived here promptly. Of course there wasn't any trouble in introducing this one, as the colony was just crying for a queen. After finding that my colony of bees was going to be so late getting a start, I bought a colony of Italians from one of my neighbors for \$7.10. I have now increased the two colonies (one of which was a nucleus) to eight good colonies, raised my own queens, and have them in good condition for winter, and have taken 210 pounds of comb honey from these colonies. I sold the most of it at 20 cts. per section.

Stockton, Va.

F. W. GRAVELY.

Old Hat-crown Sewed Inside of the Alexander Veil

On page 305, April 15, an improvement on the Alexander bee-veil is shown. I have an improvement which I think is better than the one described. I take an old hat-crown, and fasten it inside the veil by sewing through the center of the crown and the center of the top of the veil. This keeps the veil in position, and acts as a pivot so that the head may be turned in any direction without twisting the veil.

NcNabb, Ill., May 9.

EDWIN O. GUNN.

Melting Candied Honey in Bulk

I just came across Mr. Bolton's account, p. 445, July 1, of his trouble to get honey out of a large tank in which it had candied. He says, "For two weeks or more two boys had to get into that tank and dig out the honey in dishes and pass it out to me to melt."

Several times I have been stuck with a tank of candied honey. I use the ordinary square iron 400-gallon tank which holds two and a half tons. The first tank worried me. I did not know what to do with it at all. Eventually I built a small log fire back and front, but it took two days' heating by this means before it would pass out of the tap. Subsequently I found a better way.

Generally the honey is not candied throughout. There is a small part, perhaps an inch thick, nearest the tank walls, which will run. Draw off as much of this as possible into open buckets, and heat it in a boiler. When this honey is thoroughly hot, pour it in at the top of the tank, and work it about into the solid honey. Repeat this performance, and in a very little time the whole mass will get thin enough to run.

If no honey will run out of the tank in the first place, dig some out with a long-handled shovel; or if the tank is not quite full heat some other honey, and pour in.

Of course the honey should not be allowed to remain in the tank to candy in the first place, but a lot of things happen which should not. Some of our honey candies very quickly. Some of our ti-tree honey, for instance, not all of it, will candy in forty-eight hours. We get this honey in the autumn, and it is our last yielder. It is a dark, strong-flavored honey, and I was wondering if you had the same thing in Florida, as I noticed you mentioned that the bees you had sent there would be just in time for the ti-ti. Correct name for our honey is ti-ti, but it is generally called ti-tree (pronounced tea-tree).

MAJOR SHALLARD.

S. Woodburn, N. S. W., Australia.

[It is more than likely that your ti-tree is the same as the ti-ti of Florida. Ti-ti honey has a reddish color, strong flavor, and it granulates very rapidly. It also causes any honey with which it is mixed to granulate, even the tupelo.—Ed.]

A. I. Root

OUR HOMES

Editor

Continued from page 649, Aug. 15.

What hath God wrought?—NUM. 23:23.

Just a word more about the "blowing-up" that my neighbor gave me when I broke up the horse-trade. Well, the blowing-up he gave me, dear friends, did not hurt me a bit. It did me *good*. I had the good sense to keep my mouth shut while he was abusing me, but I made some strong resolutions. If it had been expressed in words it might have been something like this: "Look here, old fellow, the time may come when I can buy you out, slick and clean, with all your boastful bravado, etc." And his talk and the jeers of the crowd spurred me on to take better care of my customers and business than I had ever done before. I told you there were two other jewelers doing a fair business in our little town at the time I started; but I tried so hard to please and to be honest and square, that in two or three years' time one of the other places was closed up in bankruptcy, and a little later the other establishment was glad to sell out to me, saying the town was not big enough for two jewelers.

In our previous issue, through some mistake in type I said the little quarterly I started in 1873 was changed to a semi-monthly. It should have said *monthly*, as GLEANINGS was not published as a semi-monthly till 1891. In those days it was quite the fashion for rival journals or newspapers to pitch into each other. May God be praised that this kind of work has mostly gone by.

Not long after our journal was started, glucose was largely used for adulterating honey before we had any pure-food laws abolishing that sort of business. At this time a story was started to the effect that my yields of honey were secured by feeding the bees glucose. The only foundation for this story was that I made some experiments in feeding grape sugar in place of cane sugar to bees. The grape sugar then on the market was of such a quality that the bees did not care very much about it, and would take it only when there was a dearth of honey. It could be fed in the open air without inducing robbing, etc. Well, the editor of the *American Bee Journal* got hold of it and occupied a large part of one issue of his paper in showing up the inconsistencies of the editor of GLEANINGS IN BEE CULTURE. As soon as I read it I sat down and wrote a reply to be published in GLEANINGS. I had just learned to manage a typewriter, and I had one of the first machines ever made. I

had just finished my reply to the unkind attack, and it made a strip of paper a yard long or more. I was just reflecting that it would occupy all the space in my forthcoming issue, and began questioning whether it would be profitable or wise to take so much space in defending myself from a personal attack. Just then my good pastor, the Rev. A. T. Reed, passed in front of the store. I called him in, showing him briefly what the *American Bee Journal* had said. Then I showed him my long string of copy, and asked him to read it. He took it in his hand while he smilingly looked at me and said something like this:

"Mr. Root, I do not think I *need* to read this. Whenever it requires such an amount of space to reply to an attack on us, something is wrong. If I were you I would put that reply in the waste-basket. If you make any reply at all, boil it down to a few brief sentences."

I had enough faith in the wisdom of my pastor to follow his advice. I took the answer that had taken so much time and brains to prepare and threw it into the waste-basket, and my reply to the attack was just one sentence about as follows: "Our good friend of the *American Bee Journal* has failed to consider that the glucose and grape sugar of commerce are widely different, even if the chemical composition is pretty nearly the same." Then I forgot about the matter, and went on with my business. A little time later a beekeepers' convention was held in Michigan, and I attended it. While I was there shaking hands with a crowd of beekeepers, Prof. A. J. Cook, then of the Michigan Agricultural College (another of God's noblemen), came up into the crowd, and, putting his hand on my shoulder, said:

"Mr. Root, I want to congratulate you on having had the grace and wisdom to reply to a lengthy and unkind attack in just one single sentence."

There you have it, friends. A good and honest man never needs a great string of words to defend himself before the world: and if people right and left would go to their *pastor* for advice when they are getting into a quarrel it would avert a world of trouble, especially if they are willing to *take* the advice as I did.

My department of *Our Homes*, or religious talks, as they have been called, have brought me in touch with a *great lot* of good men and women. Thirty years or more ago our little journal came into the hands of a poor invalid, Mrs. L. C. Axtell, of Roseville,

Warren Co., Ill. She was confined to her bed with but little hope of ever being able to get up. She could just lie on her back and write a little with a pencil. Well, she got the bee-fever, and finally teased so hard for a colony of bees to be placed just a little outside the window-sill that her friends procured one, and fixed her up with cushions so she could lie on her side and see the bees go out and bring in pollen and honey. The new interest and enthusiasm gave her an appetite, and she was soon placed in an easy-chair beside the window. She soon became so curious in regard to the inner workings of the hive that they made arrangements so she could open it, get out the combs, find the queen, etc. You may, perhaps, guess the result. A little later she was outside in her easy-chair, and, later still, upon her feet. To be brief, she eventually walked from one hive to another, handled the bees successfully, took off the honey, forgot her infirmity and feeble health, and soon did the work of a strong man. Mrs. Axtell had been for years an earnest Christian. She had prayed for an opportunity to spread the gospel, and continued to pray as she made progress in bee culture. She promised the Lord if he would give her success she would use the proceeds for missionary work and for spreading the gospel; and finally, with the aid of her husband, who entered into the work also with his whole soul, she produced a crop of honey then unheard of, amounting to 39,000 lbs. Out of the proceeds about \$4000 was given to the support of missionaries in foreign lands, and a little tract was published at that time entitled "What the Honeybees have Done for Mission Work," or something like that. Mrs. Axtell recovered her health so as to attend a beekeepers' convention, telling how the Lord had rescued her and given her success with bees. She is still living, and only a few months ago gave me an account of what she is doing now, when she is getting old, not only with the bees but with small fruits and other of God's gifts.

Shortly after the episode I have mentioned in regard to that microscopic photo I announced that GLEANINGS would be sent to missionaries in any part of the world, free of charge, so long as they cared to read it. I said if any of the readers of GLEANINGS had friends in foreign mission fields and would send me their names they could have it free of charge as long as they would read it. Now, to illustrate how poorly I was informed at that time in regard to mission work I supposed there were only about a dozen or two missionaries in all the world. After that announcement had gone out, one

of the clerks who opened the letters said, "Mr. Root, I am afraid you have been a little reckless. We have an awful lot of letters asking us to send GLEANINGS to missionaries; and that is not all—you have to pay the postage, 24 cents a year, on most of them, and a few are 48 cents a year. Can you stand all this?"

I reflected a minute. To tell the truth, I was often hard up at that early day. Again and again I had hard work to scrape up money enough to pay all my help Saturday night. But my little prayer, "Lord, help," that became at that time not only a *daily* petition, but almost *hourly*, rarely failed. When I was getting the boys out of jail and setting them at work, financial help came from unexpected sources. I finally looked at the clerk smilingly and said, "Don't you worry, my good friend. The great Father above will furnish the postage-stamps."

Dear friends, I want to tell you my faith was not misplaced. Now listen to another thing. It is the honest truth that, when I agreed to send GLEANINGS, I had not a thought of the *advertising* it would bring me. I had become enthusiastic on spreading the gospel; and with the hope that my little journal might help the missionaries I made the decision; and I was more astonished than anybody else on receiving letters from missionaries (which letters were published in our journal) telling me incidentally about bee culture in foreign parts of the earth. From that time forward, orders have been coming, not only from every land where our language is spoken, but orders are still coming from people who do not speak our language: and we not only have an interpreter here in our office, but we have one in New York who can translate our own letters into any of the principal languages of the earth.

In a little time after GLEANINGS was started I decided there must be an instruction-book on bees; and knowing that it would have to be revised *almost constantly*, I purchased type enough to set up the entire work. It was called the "A B C of Bee Culture." It was at first only a little 25-cent book; then 50 cents, then 75, and so on. The pages being kept all in standing type, it enabled us to make corrections and add to or take out matter as necessary for new editions. This kept us constantly in the forefront of bee-books.

To illustrate with what care and pains I took to have every thing authentic, let me tell you that when I started my chapter on bee-hunting I recognized that I was not competent to do it justice. In our neighborhood there was a character whom we

called "Sol Holcomb." He had hunted bees more or less all his life, and liked no better fun than to tramp through the woods bee-hunting. I went over to his farm and asked if I could hire him to teach *me* bee-hunting. He said he would greatly enjoy it, but he was very busy just then on the farm, and he would have to charge me about \$1.50 a day—about what he would have to pay a man to take his place in doing the farm-work. Our A B C book will tell you all about it. After my chapter on bee-hunting had gone out, one good friend wrote me, after reading that chapter, that none but an old bee-hunter, a veteran in the business, could have written that account. While I was preparing that chapter a smart-looking chap who was engaged by a music concern in Cincinnati came to Medina to talk about bees. I had a good many visitors about that time, and sometimes they interfered quite a little with my plans and work. After spending a little time with this music man, I explained to him that I had an engagement with a man to teach me how to hunt bees, and begged that he would excuse me.

"But why can't I go along?" asked the stranger.

I told him I knew of no reason why he could not go along if he wished; but as he was rather short-legged, like myself, I suggested that he might get pretty tired, and I think he did; but I guess he seemed to enjoy it after all. While we were straddling over logs, getting through the bushes, etc., I began whistling. I was just then taking lessons on an instrument, and I began whistling my morning exercise. The stranger finally said, "Mr. Root, that is a rather pretty little melody you are whistling."

"Yes," said I, "I think it is quite pretty."

"Well, I am glad you like it, for I composed that little exercise."

I stopped and stared at him. I do not think I had given him enough attention to remember his name; but I just thought to myself that *that* was a rather big yarn, but made no reply. I don't know but I treated him rather coolly after that.* When we were getting out of the buggy at my home he asked to see the music-book that contained the exercise, so I brought it out to the gate. Said he, "Mr. Root, do you see that star?"

I nodded.

"Now look at the line in fine print at the bottom of the page. It reads, 'Composed by Dr. C. C. Miller.' Well, that's *me*! I am

Dr. C. C. Miller. I wanted you to see this because you thought I was lying when I said *I* composed it."

You may be sure I made some apologies. Furthermore, I said, "Doctor, if you are a musical composer you certainly know how to play. Come in and play it for me."

Then and there my lifelong acquaintance with Dr. Miller was formed. He played not only the little exercise, but delighted the whole household by singing "The Rock that is Higher than I," and other beautiful hymns. In fact, we were so much taken up with our new friend that I insisted on his staying over night. I suppose I should explain right here that all of this happened before I found the microscopic photograph, and I was not, at the time of his visit, a professing Christian. There was no Homes department in GLEANINGS. Now I want to mention that, as nearly as I can recall, he has since declared he cannot remember any thing about it. My reply to this is that beautiful text where the people say, "Lord, when saw we thee an hungred, or athirst, or a stranger, or naked, or sick, or in prison, and did not minister unto thee?" Now, this is what he said, and I am sure I am not mistaken: "Mr. Root, I told you I came in here to learn about bee culture, and that is true. I have learned a lot. I shall not soon forget the kindness both you and Mrs. Root have shown me. But there is another reason besides bee culture which I wish to tell you; and that little melody you whistled when out in the woods opened the way. In your journal you have a happy faculty of making things plain and of getting hold of people; and I had longed and prayed that you might use that God-given gift to spread the gospel of the Lord Jesus Christ as well as to teach bee culture."

I laughingly replied that I had not said any thing *against* spreading the gospel of Christ. This was, of course, *before* I sent GLEANINGS to the missionaries. Well, his reply was, "He that is not for me is against me." Then I bade him good-by. This talk of his, with kindly words from other professing Christians, had very doubtless very much to do with what came about when I got a glimpse of that little text on the microscopic photo.

* Before my new-found friend had left he said something like this: "Mr. Root, I am tired of traveling and being away from home. Although I have a good salary I would relinquish it in a minute if I could have any reasonable assurance that I could make a *bare living* by keeping bees." I gave him what advice and instructions I could; and from that time to this, toward forty years, he has been engaged in beekeeping. See page 661 for a brief report of what he accomplished last year. Now please do not think, friends, that the doctor has had such yields all along, for he has *had* his ups and downs (especially the "downs") like the rest of us.

* I had got it into my head that this slick-looking chap had something to sell. Yes, he *had* something to sell, as I afterward discovered; but it was the pearl of great price, and it was to be had without money and without price.

HEALTH NOTES

DAILY BATHING; THE IMPORTANCE OF BEING WASHED ALL OVER EVERY DAY.

I find so many good people among our friends and acquaintances who think they cannot get time to be washed all over *every* day, and who also seem to think it is not so very important, I feel constrained to say a few words in regard to it. Now, lest you think that I get into a bath-tub every day, using a large amount of soft water (which is not always to be had without inconvenience), I will explain how I take my daily bath down in our Florida home where we do not have up-to-date toilet conveniences. As it is often too cold to wash with comfort, especially for elderly people, I take my bath right by our little cooking-stove. It is a part of Mrs. Root's religion to have the fuel fixed in the stove so it will start quickly with a match. She also keeps a kettle of soft rain water on top of the stove. When I first get out of bed I light the fire. If it is quite cool I drop my night-dress down to my waist or perhaps further down. I first get warmed up with a big dry rubbing of my arms and limbs, and, in fact, every part of my body, and no matter how cold the morning may be, I can, by this sort of exercise, get up a circulation so I do not *feel* the cold; and one can have an air bath at the same time, which I am sure is very beneficial. If the weather is so cool that you need to have the *water* warmed as well as the air in the room, by the time you get through with your brisk rubbing the water will be found to be warm enough. I used to stand in a tub so as to avoid slopping on the floor; but a tub is too much bother to get down and hang up again; so I use a large-sized dishpan. You can get one made of cheap tin for a few cents, and it will be light and easy to handle.* Pour some water in the dishpan, and in that way you can give your feet a little soaking while you are scrubbing the rest of your body. Now have the wash-basin for water on a box just high enough to be handy; and the box should be large enough to hold the soap-dish as well as the wash-basin. I think Terry does not use any soap in his daily bath; but with the sort of work I do, and the profuse perspiration I get into every day in Florida, I prefer a little soap for my head and face, and especially my arms and hands. Give both a good scrubbing with soap and water;

then, holding your arms over the wash-basin, or perhaps resting one hand on the washdish bottom, scrub one arm clear up to the shoulder, and then the other arm the same way. Then scrub your body all over, going through the same exercise you previously did to get warm. With a little practice you will learn to touch every spot on your body with the bare wet hand. I do not want any sponge nor rag. After you have scrubbed every part of your body from head to foot, go over your feet most thoroughly, scrubbing between the toes; and if there is any part of your feet that is disposed to raise corns, give that a little extra scrubbing with soap; and while we are speaking about corns, I think the daily bath will cure them if you have shoes nicely fitted and *sufficiently ventilated*. I am led to believe that corns are oftentimes if not always nature's protest against a lack of ventilation. After every inch of your body is wetted and rubbed, then give it a good scrubbing with a coarse towel until every part of the body is dry and warm. Do not forget to check the stove or you will find the room too hot to be comfortable before you get through with it. I prefer to take my bath with doors and windows open, and I do most of the time.

Now, with practice you can do all I have mentioned inside of ten minutes; and I think if I were rushed for time I could do it in five minutes,* and half a gallon of soft water is all that is needed. I know there are various machines and inventions to help this daily bath; but I prefer what I have described to any one of them. In my northern home we have a porcelain-lined bath-tub and wash-basins, but I like the plain simple way given so much better that I rarely use a bath-tub. For one thing, it is too hard work for an old man to lie down in a slippery bath-tub and get up again.

Now, besides improving our health there is a tremendous saving in washing dirty clothes. The clothing that I wear next to me is so clean that I often use it two weeks instead of one; and by taking a little extra

* When I am away from home, or where the dishpan or tub is not available, I simply spread a large towel on the floor and stand on it. With a little care one can avoid getting any water or any thing else on the floor and surroundings.

* In order to be sure that I am right about the time required, this morning I timed myself by the watch. It took just *four minutes* to do the washing and scrubbing off with a dry towel. Now, everybody wants to wash his head and ears and neck and hands every morning, any way, and this operation will take at least one minute; so if you are as spry as I am (at the age of 75) it need not take more than *three minutes* additional to wash all over. Of course this has nothing to do with dressing or undressing. I take it that everybody nowadays removes every "scrap" worn during the day before he gets into bed. If he does not, somebody ought to take him in hand and do a little "missionary work" with him.

pains I can keep my night-dress so clean that, if I get my old one and a new one mixed, I cannot tell which is which. Your wife will be pleased to have a "clean husband" even if nobody else is.

In the above I spoke about having a bath in the morning. When the weather is very warm, and I feel particularly hot and sweaty, I take a bath at night. Now, here is another point: I have been suspicious for many years that the time to take a bath so as to have it do the *most good* is when you are sweating so profusely that you cannot only see the foul matter that has been forced out through the pores of the skin, but you can smell it. This is the time for a bath, and you do not want to wait until the sweat dries on. If you do, a large part of the impure matter some way works back through the pores into the body. I have been thinking this a good while, but hardly dared to put it in print until I saw the book "Old Age Deferred," and this book said it is really true. While you are dripping with sweat, and are so wet that you are in danger of catching cold if you sit in a draft, then is the time to give your body a good cleansing with plenty of clean soft water; for if you wait until the sweat evaporates, and your body becomes dry, a certain amount of impure matter gets back into the system to such an extent that soap and water cannot catch it all. Some of you may be inclined to dispute this; but try taking a bath in water not too cold when you are covered with sweat. I remember that on one occasion when living in the "cabin in the woods" I had been working very hard, and was quite tired out. It was quite important, however, that I should go over the hills to a neighbor's a little more than a mile away. I was, at the time, covered with sweat, and thought I would have to give up the trip, as I felt too much used up. I happened, however, to be near a spring in the woods. I just stripped off, and, taking a wash-basin that I kept there for the purpose, I poured cold spring water all over my body again and again. Then I put on my "duds" and made the trip on my wheel over the hills and back, and "that tired feeling" I had was all gone. It did not come back at all, and the next morning I felt especially strong and well.

Now, those of you who wish to join the club that is going to try to live to be a hundred years old, and to be sweet and clean up to the hundred mark, start in with a daily bath, and do something every day in your life to start sweating just a little, with outdoor exercise if possible.

In the above I spoke about the need of

ventilation for the feet, and I want to add a word about the ventilation of the whole body. In order to feel well and do effective work with either brain or muscle, especially in hot weather, it is quite important that the whole body be exposed to the air as much as possible, and that we should avoid heavy, useless clothing. Until recently I have been wearing summer underwear that cost \$2.00 a garment—union suits. I am now wearing something very much more comfortable, with a good deal more ventilation, and which is more satisfactory all around, that cost only 40 cents a garment, which I bought of Sears, Roebuck & Co. It is something on the plan of the "porousknit" underwear. It gives more air to the body than any thing else I have ever got hold of, and I should think it would be quite durable, as it is all cotton, with no bother about shrinkage at the laundry.

CHEESE; LIKE FRUIT IT SHOULD BE WELL "RIPENED" BEFORE BEING EATEN.

Mr. Root:—I was much interested in your article on cheese as a diet. You speak in regard to many believing it to be constipating. Is not this simply a matter of the quality of the cheese and the quantity eaten? At least from my experience I should say it is. Eaten as many do before it is half ripened, or "green," in small quantities, it surely is; but if eaten in the place of meat, in generous quantity, we have not found it so. You emphasize the necessity of well-ripened fruits and honey. Why not the cheese also? In this market it is very hard to get well-ripened cheese, as nine-tenths of the people call for the green indigestible stuff that is not fit to eat. My test for a good cheese is that it should dissolve in the mouth like a lump of sugar or honey. While I have never gotten to the place where I could pick out the "skippers" and eat the cheese, I like it pretty close to that stage. We have an idea that incipient colds and sore throat can be stopped by a good dose of well-ripened cheese. Any way, it is "mighty soothing" to a sore throat to let a piece dissolve in the mouth. I had a school friend whose remedy for a bad cold was to take off his shoes, place his feet as near a hot stove as he could bear, and eat from a pound to a pound and a half of good cheese and go to bed. S. T. WALLAR.

Forest Grove, Ore., July 27.

My own experience agrees remarkably with what is said above, with the exception of the tremendous "dose" of cheese spoken of at the close.

"OLD AGE DEFERRED;" THE SIMPLE LIFE.

The first of the following clippings is from the *Cleveland Plain Dealer*, and the second from the *Indianapolis Star*.

LIVES TO BE 103; CLEVELAND'S OLDEST MAN EXPIRES IN WARSAW, IND.

Moderation in eating was Mr. Clark's primary rule, the one to which he always accounted his longevity. Plain food, no pastries, composed his daily diet. He practiced the theories of Horace Fletcher years before Fletcher gained notoriety by his advocacy of the simple diet. Mr. Clark never used alco-

hol, and stopped the use of tobacco shortly after coming to this country.

One of his standing rules was, weather permitting, to take a long walk daily. His declining years were made happier by the fact that hundreds of Cleveland and Ohio friends annually tendered him a birthday party.

WORKS DAILY IN HIS GARDEN CLEAR UP TO HIS 100TH BIRTHDAY.

COLUMBUS, IND., July 1.—Despite an all-day rain, more than 1000 persons were present to-day at a celebration held at Hartsville in honor of the 100th anniversary of the birth of Wesley Potorff, retired farmer of the town. The aged man shook hands with every one present and stood the strain of the day well, although he had mowed all of the weeds about his home on the day previous with an old-fashioned scythe.

He is the father of six children, and has nineteen grandchildren, thirty great-grandchildren, and thirteen great-great-grandchildren.

NEVER USED TOBACCO.

He never used tobacco in any form, and never swore an oath. In his early manhood he became a member of the Christian Church, and for forty years has been a deacon of the Hartsville Christian Church.

Mr. Potorff is well preserved physically for one of his age, and even yet performs much manual labor. Within the last week he has whitewashed the fence around his home and built and hung a gate. He works almost daily in his garden.

By the way, the older I grow the more I feel the importance of teaching children as well as old people the importance of "eating to live instead of living to eat;" also the importance of a reasonable amount of outdoor exercise every day, no matter how old we are, and where can we find a better place for such exercise than in the garden?

HIGH-PRESSURE GARDENING

SWEET CLOVER ALONG THE ROADSIDE, ETC.

We clip the following from the *University Farm Press News*, published at the University Farm, St. Paul, Minn.:

The appearance of white sweet clover along roadsides throughout Minnesota is a very encouraging feature. It is the forerunner of alfalfa, and should not be unwelcome in its own right, since it is practically as valuable a soil-improver as common red clover or alfalfa.

Inoculating the soil for white sweet clover is just as necessary to success as it is for alfalfa; but where seed can be gathered along the roadside at no expense except the labor it will pay in many instances to sow three or four pounds of the unhulled seed per acre with the grain, other clover, and timothy seed. Some of the sweet-clover plants will be inoculated the first year, and more the second year. Alfalfa following will get the benefit of this increase in numbers of the right kind of bacteria.

The thing to do as the sweet clover along the roadsides ripens its seed is to gather it for use on farms, or for sale if more is gathered than is wanted.—A. C. ARMY, Assistant Agriculturist, University Farm, St. Paul.

Although the above does not say so, yet we take it that sweet clover has got in along the roadside because they used broken limestone in making the road. We find it growing with wonderful luxuriance all through Ohio wherever crushed limestone has been used for road-making. During a dusty time, when this crushed limestone is carried by the wind over to the adjoining fields the effect is plainly noticeable on all kinds of clover, and sweet clover particularly. The bacteria mentioned can also be obtained by scraping up the soil where the sweet clover grows along the roadside, and sprinkling it over the fields.

DYNAMITE FOR TREE-PLANTING, SUBSOILING, ETC.

Our friends may have noticed (especially our farming friends) that many of our agricultural periodicals are giving illustrat-

ed articles on the beneficial results brought about by the use of dynamite. Now, I am glad to see this, and I am glad to welcome dynamite; but still I have had a feeling all along that there is a good deal of exaggeration, especially in selecting the most valuable results. I felt pretty sure, too, many times, that the articles were furnished by the people who have dynamite to sell. Now, this matter is all right if not carried too far. What we want is practical experience from the farmers themselves, and we want the unfavorable reports as well as the favorable. Finally, our experiment stations are the ones to test dynamite and *every thing else*, for that matter, that is being recommended to the farmers. With this in mind I questioned our Ohio Experiment Station, and here is the reply from my good friend Prof. C. E. Thorne, who has been for many years a careful and conservative observer:

Mr. A. I. Root:—I have yours of the 27th, and replying would say that we have used dynamite in a small way for subsoiling on this farm; and while the first season seemed to show beneficial results, this difference disappeared by the second season, and we are not able now to see that the dynamiting has been of any advantage. We have similar reports from other directions, and therefore are not at all prepared to recommend dynamiting as a substitute for tile drainage.

I have set out trees with it, and have been pleased with the ease with which the holes were made; but I do not see that the trees planted in that way have done any better; in fact, not so well as where the land was plowed before planting. When it is not practicable to do this, I think the dynamite a good thing for tree-planting.

One of our drainage difficulties on this soil is that the fine silt soon fills up the drainage crevices, and even tiles will be filled with it very quickly if the outlet becomes in any way obstructed, and we think the crevices made by dynamite would soon be filled with this silt. On the somewhat coarser-grained soil that you have, this objection might not hold.

CHAS. E. THORNE, Director.

Wooster, Ohio, June 29.

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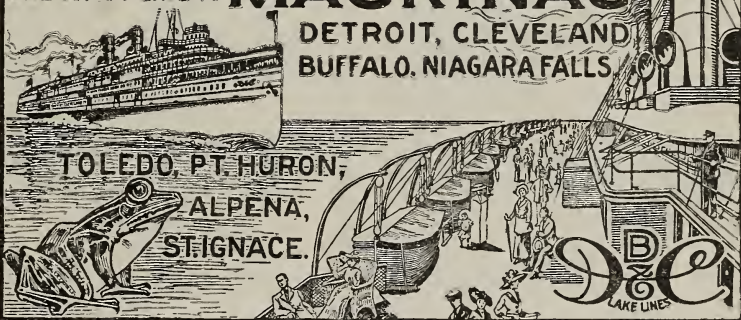
AN INTERESTING PAMPHLET giving detailed description of various trips will be mailed you on receipt of two cents to pay postage. Address **L. G. Lewis, Genl. Passenger Agent, Detroit, Mich.**

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F. A. LOCKHART & CO., Lake George, New York.

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American Farmers School, 549 Laird Building, Minneapolis, Minn.

Buckwheat Queens!

Mr. J. B. Hollopeter, Pentz, Pa.:—Having received good reports of your queens from several of my friends, I am desirous of trying a few this season for a comparison with other strains.
New York City, Aug. 7, 1914. HARRY HIRSCH.

Our queens are at their best during the buckwheat and goldenrod honey flow in August and September, and I want you to try a half-dozen of my queens when they are at their best. Mr. Ira D. Bartlett, of Mich., after trying a dozen, has purchased a hundred more.

Prices: Six for \$4.00; 12 for \$8.00; 25 at 60c each.

Will return all orders if can not fill same on date specified.

ADDRESS

J. B. HOLLOPETER, Pentz, Clearfield Co., Pennsylvania

Queens by Return Mail.

SATISFACTION GUARANTEED.

F. J. Wardell, formerly head queen-breeder for The A. I. Root Company, is now prepared to furnish queens of his gentle stock. The bees are so gentle that their owner seldom needs a veil—just the thing for the beginners that are afraid of stings. The editor of GLEANINGS who saw these bees and handled them, says they are the gentlest bees he ever saw. They are bred direct from the Root \$200.00 queen.

PRICES:

Untested	\$1.00
Select Untested	1.25
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Select Tested	3.00
Breeders	\$7.50 to \$10.00

Send all orders to

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QUEENS!

Quirin's Improved Superior Italian Bees and Queens. . . They are Northern Bred and are Hardy. . . Over 20 Years a Breeder.

	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested . . .	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colony	6.00	30.00		5.00	25.00	
10-frame colony	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees . . .	1.50	7.00		1.00	5.00	
1-lb. pkg. bees	2.00	10.00		1.50	8.00	

BREEDERS—the cream selected from our entire stock of outyards; nothing better. These breeders \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames. Do not write for lower prices even if you want 1000 queens or 100 colonies. Price is already low, considering the quality of our stock and prompt service.

Above price on bees by pound, nuclei, and colonies, does not include queen. You are to select such queen as you wish with the bees, and add the price.

ALL ORDERS FILLED PROMPTLY
FROM NOW ON.

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BELLEVUE, OHIO

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Our Prices:

July, August, September

Prices:	1	6	12	25	100
Virgins	\$.50	\$2.75	\$5.00	\$9.50	\$35.00
Untested85	4.50	8.00	15.50	62.50
Select Untested	1.00	5.00	9.00	17.00	65.00
WARRANTED	1.10	5.50	9.50	18.50	70.00
Tested	1.50	7.50	13.50	25.00	90.00
Tested Breeders	3.00				
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Your choice of either Goldens or leather-colored queens by return mail.

The A. I. Root Company purchase queens from us, and we refer you to their letter of endorsement below:

Medina, Ohio, Feb. 6, 1914.

The Penn Co., Penn, Miss.:

Replying to yours of Feb. 3, we would state that we have bought a large number of queens of you. We have found them uniformly marked, and of a good stock; in fact, they are first-class in every respect. Another thing, we have always found that you make prompt deliveries, or give us notice promptly when such deliveries can not be made.

THE A. I. ROOT COMPANY,
by E. R. Root, Vice-pres.

Address Orders to

THE PENN CO., . PENN, MISS.

W. H. LAWS

is prepared to take care of all your queen orders the coming season.

Twenty-six years of careful breeding places Laws' queens above the usual standard.

My bees, in my own and in the hands of others, have taken first premiums at the leading fairs all over the United States; and, in the hands of single individuals, have gathered over a car of honey in one season.

Tested queens ready now. Each, \$1; 12 for \$10. Untested, after April 15, breeding queens, about fifty of the finest ready at any time; each, \$5.00.

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May to September. Tested, \$2.60; Champion Layers, \$4.00. Dead queens replaced if box is returned unopened. Discount to dealers or for quantities. Beautiful unsolicited testimonials. Honest dealing. For further particulars write to

MALAN BROTHERS

Queen-breeders

Lucerna, San Giavanna, Italy

Queens of MOORE'S STRAIN of ITALIANS

PRODUCE WORKERS

that fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

J. P. MOORE,

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Archdekin's FINE ITALIAN QUEENS

THREE BANDED

Bred for Persistent Profitable Production of Honey. Prolific, hardy, gentle. The bee for pleasure or profit. One customer says, "Your queen soon had her ten frames running over with bees that are hustlers." Cells built in strong two-story colonies, and mated by best-known methods. No disease. Satisfaction guaranteed. Orders filled promptly. Ready May 20. Untested, \$1.00 each; three for \$2.75; six for \$5.00; dozen, \$9.00. Select tested, \$2.00 each.

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ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, 75 cts.; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25 c. E. E. MOTT, Glenwood, Mich.



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Bees by the Pound
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By RETURN mail or money refunded. Bred from best RED-CLOVER strains in the U. S. In full colonies from my SUPERIOR BREEDERS; Northern bred for business; long-tongued; leather-colored or three-banded; gentle; winter well; hustlers; not inclined to swarm; roll honey in. One untested, 75c; 6, \$4.00; 12, \$7.50. One select untested, \$1.25; 6, \$5.00; 12, \$9.00. A specialist of 17 years' experience. Safe arrival and satisfaction guaranteed.

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My bees are the product of many years of breeding by SWARTHMORE and HENRY ALLY. Both names stand out like beacon lights among our past and present breeders, for the best queens ever produced in the United States. Never had foul brood.

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by introducing some of Leininger's strain of Italians. Have been a breeder for 25 years. No better bees in America. Untested, 1, \$1.00; 6, \$5.00. Tested, 1, \$1.25; 6, \$6.00. Breeders, \$10 each. Every queen guaranteed. **FRED LEININGER & SON, Delphos, Ohio**

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Feeds slow or fast. No robbery. No trouble. For sale by all leading bee-supply dealers.

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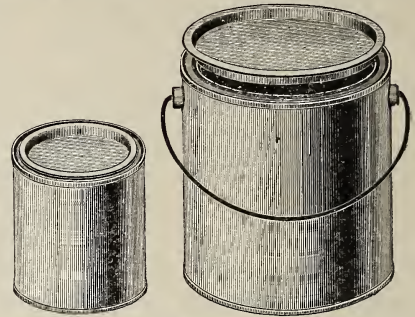
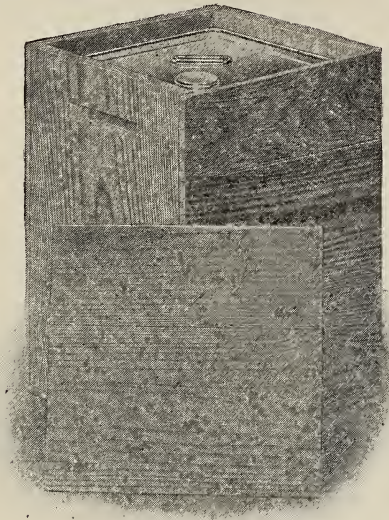
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Every cottage fully guaranteed. Size 7 1/2 inches high. Sent parcel post prepaid for \$1. Your money back if dissatisfied.

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Approx. Capacity	Per 100 in 50 lots	Per 100 in 100 lots	Per 100 in 500 lots	Per 1000 lots or over
2 lb. Can	..	\$2.25	\$2.15	\$20.00
2½ lb. Can	..	2.75	2.60	24.00
3 lb. Can	..	3.00	2.85	28.00
5 lb. Pail	\$5.00	4.75	4.50	42.50
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Two in a Case. . . . Price 60c per case.

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Medina, Ohio

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FOR SALE.—Strained light-amber alfalfa honey, carload lots.
W. W. FAIRCHILD, Heber, Imperial Co., Cal.

FOR SALE.—Extracted clover honey, quality A1. Price 10 cents per lb.
JOS. HANKE, Port Washington, Wis.

FOR SALE.—Well-ripened light extracted honey in 60-lb. cans at 9 cts. per lb.; sample 5 cts.
H. J. AVERY, Katonah, N. Y.

I have 7 barrels of saw-palmetto and seagrape honey mixed, well ripened, to sell; nice flavor; 6 cts. per lb., f. o. b. Titusville, Fla. D. L. CONRAD.

FOR SALE.—Light extracted in new 60-pound cans, 8½ cents per pound; in ten-case lots, 8 cents; dark amber, ½ cent less. H. G. QUIRIN, Bellevue, O.

FOR SALE.—Best quality white-clover extracted honey in 60-lb. cans. State how much you can use, and I will quote price.
L. S. GRIGGS,
711 Avon St., Flint, Mich.

FOR SALE.—Light amber honey, 8½ cts. per lb. California sage honey 10 cts. per lb. Two 60-lb. cans to a case. Sample of either 10 cts.
I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—Fine mixed amber extracted honey in 60-lb. cans net at \$5 each. Generous sample for ten cents in stamps, which may apply on order for honey.
J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—Raspberry, basswood, No. 1, white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case, 9 cases to carrier. Extracted, 120-lb. cases at 9 cts. WILEY A. LATSHAW, Clarion, Mich.

RASPBERRY HONEY FOR SALE.—Left on the hives until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. Put up in new 60-lb. tin cans. Price \$6.00 a can. Sample by mail, 10 cts. Said 10 cts. may be applied on order for honey.
ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

FOR SALE.—10,000 lbs. of honey of white and sweet clover blend; also 20,000 lbs. of Florida white-tupelo honey taken and shipped by myself last May; will sell in any amount from 60 lbs. up. Write for prices. Sample by mail 10c. Said 10c may be applied on order.
F. W. SUMMERFIELD,
2465 Broadway, Toledo, Ohio.

FOR SALE.—An extra-fine quality of white extracted honey put up in new 60-lb. net tin cans, two in a case for shipment. Our crop of honey this year is a blend of about half each of clover and basswood, thoroughly cured on the hives by the bees before extracting. The fact is, not a single pound of the crop was extracted until some time after the close of the honey-flow. Rich, ripe rosy goods, worth twice as much as thin unripe honey extracted during the flow. For this exquisite stock we are asking ten cents per pound on car here. Do not be deceived by cheap unripe stock when a trifle more buys this superior white-clover-basswood blend that your customers will want more of from time to time. Ten yards. One thousand colonies. Liberal sample free. Address
E. D. TOWNSEND & SONS, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 173 S. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—A few barrels of light-colored honey. Send sample, and lowest price delivered.
A. F. BROWN, Virginia Hotel, Jacksonville, Fla.

WANTED.—Beeswax. We pay 35 cents per lb. cash for good light yellow wax delivered here.
QUEEN MFG. COMPANY, Falconer, N. Y.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDRETH & SEGELKEN, New York, N. Y.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices.
E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—20 ten-frame L. hives with Hoffman frames, used one season, for \$15.
J. G. BURTIS, Marietta, N. Y.

FOR SALE.—Pope four-horse single motorcycle; used less than a year; good as new, \$75.
C. M. MYERS, Winchester, Ind.

FOR SALE.—500 cases of empty five-gallon honey-cans at 25 cts. per case.
J. E. CRANE & SON, Middlebury, Vt.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. Co., Greenville, Tex.

The A. I. Root Co.'s Canadian House, Dadant foundation, bees, queens, honey, wax, poultry supplies, seeds. Write for catalog. THE CHAS. E. HOPPER Co., 185 Wright Ave., Toronto, Ontario.

"Root" bee supplies and "American" honey-cans always on hand in carload lots. SUPERIOR HONEY Co., Ogden, Utah. (Branch at Idaho Falls, Ida.) Manufacturers of the celebrated "Weed Process" foundation. Highest prices paid for beeswax.

The Beekeepers' Review is now owned and published by the honey-producers themselves. It is the paper that all honey-producers should support. Eight months' trial subscription, beginning with the May number, for only 50 cts. Sample copy free. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

WANTS AND EXCHANGES

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, quality considered. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.
C. E. SHRIVER, Boise, Idaho.

FARMERS, ATTENTION. Wanted.—Location for seven \$150,000 Condensed-milk Plants and twelve \$115,000 Milk, Flour, and Sugar Plants. We sell no stock or bonds, nor ask for free site. Show us you have natural surroundings to develop into dairy country if milk prices are such to make it possible to do so at a profit. Send full information of your advantages, pictures of farms, publications, books, etc., to HERMAN R. FRANZEN, Ephrata, Lancaster Co., Penna.

MISCELLANEOUS

You have been thinking for some time you would like to become a National Beekeepers' Association member. Now is your time. A year's dues to the National, and eight months' subscription to our own paper, the Beekeepers' Review, beginning with the May number, both for only a dollar. Address, with remittance,
THE BEEKEEPERS' REVIEW, Northstar, Mich.

BEES AND QUEENS

FOR SALE.—Untested Golden Italian queens, 60 cts. each. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—17 colonies bees. Bargain before Sept. 15. F. E. SOMMER, Dundee, Ohio.

FOR SALE.—Fine Italian queens. See my large ad. in this issue. J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

FOR SALE.—20 strong colonies bees, in 8-frame Langstroth hives, cheap. WALTER J. D'ALLAIRD, Rt. 2, Scotia, N. Y.

Phelps' golden bees, \$2.00 per lb. Common bees from outyards, \$1.50 per lb. C. W. PHELPS & SON, Binghamton, N. Y.

FOR SALE.—300 fine Italian queens at 25 cts. each; very few over one year old. THE STOVER APIARIES, Mayhew, Miss.

FOR SALE.—Cape Cod bees and queens. Young laying Italians. No disease. Try one. O. F. SNOW, East Dennis, Mass.

Connecticut queens, three-banded Italians only; large and vigorous; ready May 15. Price list. W. K. ROCKWELL, Bloomfield, Ct.

FOR SALE.—250 colonies bees, ten-frame, free from disease. Unlimited range. For particulars address G. W. ROBERTS, Manard, Texas.

Three-banded Italian queens, bred for business; untested, 75 cts. each; 6 for \$4.25. Satisfaction guaranteed. CHARLES ZWEILY, Lemont, Ill.

FOR SALE.—8 and 10 frame Root hives of Italian bees; no disease; fine condition; \$6 to \$8 each, to close out business. DR. JOHNSTON, Suffern, N. Y.

FOR SALE.—180 colonies of bees and complete outfit. Excellent field and market. No disease. Write for particulars. ARTHUR E. AULT, Bradentown, Pa.

Try my bright queens. Select untested, 60 cts. each; \$7.00 per 12. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

Untested three-banded Italian queens for the rest of the season in any quantity, 50c each. Safe arrival. W. J. FOREHAND, Rt. 2, Ft. Deposit, Ala.

Golden yellow Italian queens my specialty. Untested, 75 cts.; 3 for \$2.00; 6, \$3.75; 12, \$7.25; tested, \$1.50. Address E. A. SIMMONS, Greenville, Ala.

Golden and leather Italian queens, 100, \$60; 50, \$32.50; 12, \$8.25; 6, \$4.50; 1, 75 cts.; tested, \$1.50. BURDICK & MEEKER, Redlands, Cal.

Dunn's Golden Italian queens; booked full until March, 1915. L. J. DUNN, Queen-breeder, Rt. 6, Box 337, San Jose, Cal.

FOR SALE.—Untested queens of Robey stock mated to Howe strain drones at 50 cts. each in September. D. G. LITTLE, Hartley, Iowa.

Untested Italian queens 75 cts. each; six, \$4.00; 1 lb. bees with queen in Root cage, \$2.50. Circular and "Good Cheer" blotter free. J. B. HOLLOPETER, Pentz, Pa.

Untested yellow Italian queens, each, 75 cts.; six, \$4.00. Bees gentle, prolific, hustlers, with good honey records. Ready to mail. J. B. CASE, Port Orange, Fla.

FOR SALE.—100 colonies of bees on Hoff. frames, part in chaff hives, all in good hives; Italians and hybrids, hustlers. Price \$3.00 per colony, or will lease. Bees and yard are in a fine location. Reason for selling is on account of age and health. W. S. WILLIAMS, Julian, Pa.

FOR SALE.—Balance of season fine Golden Italian queens, 1, 60c; 6 for \$3.50. Select untested, \$1.00 each. Good honey-gatherers and healthy. Cash with order. EDW. A. REDDOUT, Box 43, Lysander, N. Y.

Northern-reared queens of Moore's strain of leath-er-colored three-banded Italians. After June 20, untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. RAMER & GLUEN, Harmony, Minn.

Queens by return mail, or your money back. See larger ad. Write for free booklet, "How to Transfer, Get Honey, and Increase." J. M. GINGERICH, Arthur, Ill.

Queens and Bees for Sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular. THE PENN CO., Penn, Miss.

Now is a good time to requene. Replace all old and inferior queens with young vigorous ones. We can furnish them by return mail. Tested, \$1.00 each; untested, 75 cts.; \$7.00 per doz. Three-banded Italians only. J. W. K. SHAW & Co., Loreauville, La.

FOR SALE.—Having sold my farm I now offer for sale 59 colonies of bees in 10-frame hives, with or without supers and supplies. No foul brood. C. S. RUSSELL, Pine City, Minn.

Doolittle & Clark's Italian queens. Safe delivery guaranteed in the United States and Canada. Breed-ers, \$2.50, \$5, and \$10; untested, \$9 per dozen. DOOLITTLE & CLARK, Marietta, Onondaga Co., N. Y.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

Golden Italian queens, good layers and good honey-gatherers; tested, \$1.00; select tested, \$1.25; untested, 60 cts.; dozen, \$7.00. D. T. GASTER, Rt. 2, Randleman, N. C.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gather-ers as can be found. Each, \$1.00; six, \$5.00; test-ed, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnett's, Va.

High-grade queens by return mail. Tested, \$1.25; warranted, 75 cts.; choice breeding queens, \$2.50; Italian, Carniolan, or Caucasian virgins of any of the above strains, 3 for \$1.00. STANLEY & FINCH, 1451 Ogden Ave., Chicago, Ill.

Phelps' Golden Italian Queens combine the qual-ities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Fifteen eight-frame colonies of pure golden Italians, \$50, including super. Thirty lock-corned hive-bodies and supers, both empty, \$12. Five nailed and painted Danzenbaker hives with frames nailed, \$10. Moving south. C. M. MYERS, Winchester, Ind.

FOR SALE.—150 modern eight-frame hives of Ital-ian and hybrid bees. Moore's and Robey strain, hived on full sheets of foundation. No disease. A bar-gain for \$3.00 per hive. All supplies for less than half their cost sold with bees. J. S. DEAN, Rensselaer Falls, N. Y.

Italian untested queens by return mail. We guar-antee our queens to satisfy you. No disease. They are bred for honey-producers. For the rest of the season they go at 50 cts. each, any number. If you are particular about your queens, we wish to supply you. W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—150 colonies of pure Italian bees, free from disease; plenty of natural stores for winter; nearly all requeneed this season; all combs built from full sheets of foundation on wired frames. Will fur-nish cellar for wintering if desired; also farm of 50 acres; no better buckwheat location in the State. THOMAS BRODERICK, Moravia, N. Y.

QUEENS OF QUALITY.—Three-band leather color, remainder of season, untested, 50 cts. each.; select untested, 60 cts. each. Satisfaction guaranteed.

J. I. BANKS, Liberty, Tenn.

Golden and three-band Italian and Carniolan queens ready to ship after April 1. Tested, \$1.00; 3 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 3 to 6, 70 cts.; 6 or more, 65 cts. each. Bees, per lb., \$1.50; nuclei, per frame, \$1.50. C. B. BANKSTON, Buffalo, Leon Co., Texas.

FOR SALE.—We offer best Italian bees in ten-frame hives, from one to carload, f. o. b. here, or in yards of 100 or more complete with fixtures and location. Cash or reasonable time. If preferred, will rent on shares several years with privilege to buy. Particulars on request. SPENCER APIARIES, Nordhoff, Cal.

FOR SALE.—2000 queens during Sept. and Oct. We are all up with our orders. Our fall honey has begun, which means perfect queens. For prices see our ad. elsewhere. All orders will be filled by return mail. GARDEN CITY APIARIES Co., Rt. 3, San Jose, Cal.

Bees with improved and unimproved land in never failing alfalfa and sweet-clover-seed raising locality. Bees with or without land, on easy payments; labor accepted as part payment; also bees in good isolated queen-rearing locality for early queens; can use a steady man.

OGDEN BEE AND HONEY Co., Ogden, Utah.

Hardy three-band Italian bees and queens; gentle, prolific honey-gatherers; guaranteed purely mated or another queen; no disease. Select tested, \$1.50; six, \$7.00. Untested, \$1.00; six, \$5.00; 12, \$8.00, by return mail. Colonies, \$6.00. Nuclei, \$3.00 with queens. S. G. CROCKER, JR., Roland Park, Baltimore, Md.

California Italian queens, goldens and three-banders, by return mail, select untested, one, \$1.00; 3, \$2.50; 12, \$8.00; tested, \$1.25. Bees by the pound a specialty. One 1-lb., \$1.25; one 2-lb., \$2.25. Safe arrival and satisfaction guaranteed. Correspondence invited. "Circular free." J. E. WING, 155 Schiele Ave., San Jose, Cal.

FOR SALE.—Three-banded Italian queens, from the best honey-gathering strains, that are hardy and gentle. Untested queens, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. Selected queens, add 25 cts. each to above prices. Breeding queens, \$3.00 to \$5.00 each. For queens in larger quantities, write for prices and circulars. ROBERT B. SPICER, Wharton, N. J.

Golden and three-banded Italians. They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; six, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60; tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00. GARDEN CITY APIARY Co., Rt. 3, Box 86, San Jose, Cal.

FOR SALE.—Our three-banded leather-colored hustlers. Queens are bred from a few select colonies, the record-breakers out of over 700. Tested, \$1.25; warranted, 75 cts.; untested, 50 cts.; select untested, 60 cts. Queens are ready by return mail. Satisfaction and safe arrival guaranteed. No disease. For large quantities write for wholesale prices.

BROWN & BERRY, Hayneville, Ala.

Queens by return mail or your money back. Guaranteed purely mated. J. E. Hand strain of three-banded Italians, bred for gentleness, honey-gathering and wintering. State Inspector's certificate. Select untested, 1, 75 cts.; 6, \$4.00; 12, \$7.00; tested, 1, \$1.00; 6, \$5.00; 12, \$9.00; select tested, 1, \$1.25; 6, \$7; 12, \$13. Breeders, \$4.00. Write for price on large orders; 10 per cent discount on 30 days' advance orders. Safe delivery and satisfaction guaranteed in U. S. and Canada. Reference, First National Bank. J. M. GINGERICH, Arthur, Ill.

POULTRY

S. C. White Minorcas, \$3.00 per 15; R. C. Buff Leghorns, S. C. Brown Leghorns, and Partridge Wyandottes, \$1.00 per 15.

HILLCREST FARM, Winchester, Ind.

REAL ESTATE

FOR SALE.—A desirable bee location in western Pennsylvania; 14 acres; good soil and water; near town, schools, and churches; modern buildings; bees often produce 100 lbs. per colony. Buildings worth price of all. Bargain to right party.

G. care of GLEANINGS.

FOR SALE.—Little farms in Valley of Virginia. Good fruit, vegetable, and poultry country. Be independent; 5 and 10 acre tracts in Shenandoah Valley, \$250 and up, easy terms. Write for handsome booklet now. F. H. LA BAUME, Agr'l Agt. N. & W. Ry., Arcade Bldg., Roanoke, Va.

HELP WANTED

WANTED.—Beekeeper, married, to run apiary on shares. Owner is absent. Must furnish at least twenty-five colonies himself or \$100 in cash to guarantee good faith. Fine location. Good home and garden furnished. Give full particulars of yourself in first letter. Address HERMAN GUSE, Sheboygan Falls, Wis.

WANTED.—A sober young man who has had experience; a position in a beeyard for the season of 1915. ALEX. ELWOOD, Walton, N. Y.

SITUATION WANTED

WANTED.—Young man with experience wants position during the rest of the season, with promise of work during the coming year. Prefer work at queen-rearing next season. Good references.

DWIGHT C. ANDERSON, Ironton, Mo.

BEEKEEPERS' DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00 by return mail. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians bred for business June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

BEESWAX DECLINED.

Beeswax is coming from West Indian ports and South America which has usually gone to Europe and is now shut out of that market because of the great war now in progress. This is having an influence in lowering the market price. We quote till further notice 31 cts. cash, 34 cts. trade for average wax delivered here.

SPECIAL IN GLASS JARS.

For a great many years we sold what was known as No. 25 jars with porcelain tops, lacquered tin rims and rubber rings. We still have in stock between two and three hundred cases of two dozen each of these jars which hold a pound of honey. We offer them at a big reduction from former price, while they last, for shipment from Medina only. Per case of 2 dozen, \$1.00; \$5.40 for 6 cases; 20 cases or more at 85 cts. per case.

CHIPPED TUMBLERS VERY CHEAP.

In putting up honey in ten-cent tumblers we find a small percentage very slightly chipped on the edge of the glass. These cannot well be sealed for honey, but they would serve the purpose of putting up

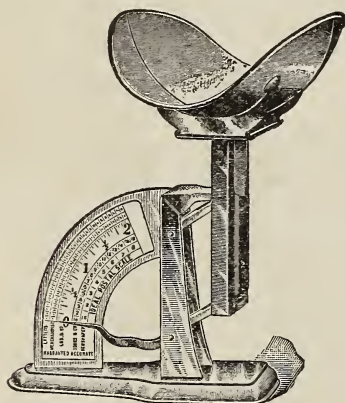
jellies or jams very nicely. They will hold about ¼ lb. of jelly. They are in corrugated paper shipping-cases of 2 doz. each. In lots of ten cases or more, including the caps, we will sell them at 20 cts. per case; fifty-case lots without caps at 16 cts. a case. The cases alone cost us 9 cts. each, so you see we are almost giving the tumblers away at this price. Will mail two or three samples to show what they are like for 10 cts. to pay postage.

BARGAINS IN SHIPPING-CASES.

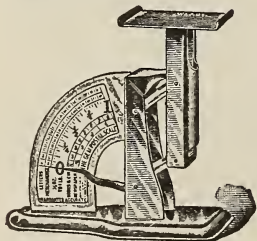
If you want cheap shipping-cases, do not fail to write us, telling what you need. We have hundreds of cases all nailed up, ready to fill, in good condition, which we are selling at bargain prices. Among them are several hundred double-tiered cases for 24 4¼ x 1½ sections, at \$10.00 for 100. We also have a lot of new cases for 12 and 16 sections—sizes we no longer catalog. These we are closing out at bargain prices. If you can use such cases it will be worth your while to write and find out what we have to offer you.

SCALES FOR WEIGHING COMB HONEY IN GRADING.

The most simple way to find the weight of section comb honey is to use some form of spring scale. The two shown below are quick to operate and handy to use, and at the same time inexpensive.



Above we show the Invincible No. 2 which is nickel plate with scoop, is a very convenient form, and the one used by the Colorado Association; capacity 2 lbs. This scale is worth \$1.50 each by freight or express with other goods. By mail, postage extra. Weight boxed 2 lbs.



Here is another, still smaller and very convenient for weighing sections or any thing that does not exceed one pound. This is a regular postal scale with graduated dial. The weight is given in ounces and half ounces. Price \$1.25. By mail, postage extra. Weight boxed 10 ounces.

For a full discussion of the new National Net-weight Law see GLEANINGS for July 15, 1914.

SPECIAL STAMPING OUTFIT.

Anticipating the needs of our patrons for meeting the requirements of the new net-weight law, we are prepared to furnish a special stamping outfit for marking sections, consisting of three molding stamps and one ink-pad. As it is not practical to mark the

exact net weight on each section these stamps are made to cover the minimum net weight of Fancy, No. 1, and No. 2 grades.

One molding stamp, "Net weight not less than 12½ oz."

One molding stamp, "Net weight not less than 11 oz."

One molding stamp, "Net weight not less than 10 oz."

One Standard self-inking pad.

Price of set only 50 cts. postage paid.

This special set furnished in molding style only. Other styles and sizes shown in our regular rubber-stamp catalog.

Section comb honey should be graded and cased, after which the minimum net weight of the particular grade to which the case belongs should be marked on each section.

SPECIAL NOTICES

BY A. I. ROOT

DAYLIGHT AHEAD.

The following, which I clip from the Chicago *Advance*, by Sidney L. Gulick, in regard to the war, is what I have been hoping and praying for:

"Disarmament has begun on a mighty scale. The nations will soon be calling for peace. This frightful war can hardly fail to advance the peace cause by a hundred years or more."

"THE SECRETS OF SUCCESS, FOR BOYS AND YOUNG MEN."

The above is the title of a book of 118 pages, a great part of which is devoted to medical advice to young men. It was written by B. J. Kendall, M. D., Geneva, Ill. The price of the book bound in paper is 25 cents; bound in cloth, 50 cents. It is one of the best books I have ever gotten hold of treating on sexual matters. There is information in it that is new to me, even if I have lived to be 75 years old, and have been in touch with physicians, teachers, and ministers, more or less all my life. The book is up to date, having been put out in 1913. I wish to make two quotations—one from page 79 and the other from page 91.

"Dr. Jacques Bertillon, of France, the famous expert in consumption, says: 'Alcohol appears to be the most deadly cause of the weakening of the organism in preparation for consumption. It is the master cause: all other causes disappear in comparison.'"

"Wealth does not always bring happiness, but it is more apt to bring unhappiness. It always brings cares, worries, and troubles to a greater or less degree. God knows whether you could be rich and virtuous, or whether the possession of great wealth would ruin your peace of mind, or cause you to forget him, or make you miserly, or induce you to become profligate, any of which would rob you of eternal life. He knows you, will take care of you, and will bring you to your best and highest development if you will follow the guidance of his spirit and make his word your rule of action. Follow this advice, and in time you will see that his way is best, even though it conflicted with some cherished plan of you own."

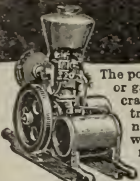
Not only should this book be read and studied by every young man, but every *parent* should read it. The suggestions given are derived from the experience in the life of a family physician. Send 25 cts. for the paper-bound edition; and after you get it you may prefer to have one of the cloth-bound copies.

May God bless and speed the message found in this little book.

BEEKEEPERS' FIELD DAY.


The beekeepers of Northern Illinois and Southern Wisconsin will hold a field day at Black Hawk Park, Rockford, Ill., Wednesday, Sept. 9. C. P. Dadant, editor of the *American Bee Journal*, and A. L. Kildow, State Inspector, will be present; and, if possible, N. E. France, State Inspector of Wisconsin, will be with us. A colony of diseased bees will be shown and the disease discussed. Every beekeeper is cordially invited to attend this meeting.

A. L. KILDOW, State Inspector of Apiaries.
Putnam, Ill.



Kerosene Engine

The powerful SANDOW Stationary Engine runs on kerosene or gasoline without change of equipment. Starts without cranking—throttle governed—hopper cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—portable—light weight—great power—5-yr. ironclad guarantee—15-day money-back trial. Sizes, 2 to 20 H.P. Send a postal today for free catalog. **DETROIT MOTOR CAR SUPPLY CO., 72 Canton Ave., Detroit, Mich.**



BOOK ON Dog Diseases AND HOW TO FEED

Mailed Free to any address by the author
H. CLAY GLOVER, V. S.
118 West 31st Street New York

Let your \$9.45 BANK HOLD



WHILE YOU TEST THIS STOVE FROM KALAMAZOO

That's one way that you can take advantage of our part payment plan — use the stove 30 days — then decide — we pay the freight and quote a wholesale price that saves you \$5 to \$10. Write for the Kalamazoo Stove Catalogue and take your pick from 500 styles and sizes.

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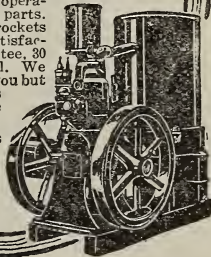
\$18.30 PER HORSEPOWER

Can you buy a horse for \$18.30? No! Yet you can get a six horsepower

DETROIT FARM ENGINE

for \$18.30 per horsepower. This engine runs on Kerosene, Gasoline, Alcohol or Distillate with surprising economy. Saws wood, grinds feed, pumps, churns, separates, makes light, does any job around the farm. Simple in operation. Only 3 moving parts. No cams, gears, sprockets or valves. Positive satisfaction ten year guarantee, 30 day money back trial. We have an engineer near you but want farmer agents everywhere. Write for particulars.

Detroit Engine Works
313 Bellevue Ave.,
Detroit, Mich.



\$18.30

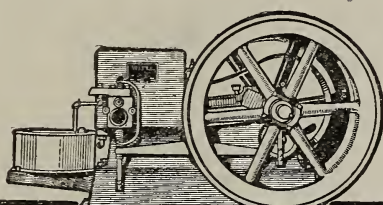
Bees Bees Bees

By the Pound, Nuclei,
and Full Colonies.

Three-banded Italian Queens.
Hardy, gentle, and excellent hustlers.
Quick delivery.
Guaranteed to please you.
A general line of The A. I. Root Co's
goods at factory prices.

If you have not yet received a catalog, a
one-cent postal card will bring it.

Robert G. Coombs, Guilford, Vt.



WITTE Engines

Kerosene, Gasoline & Gas

Look at these New Prices!

2 H.P., \$34.95; 4 H.P., \$69.75; 6 H.P., \$99.35;
8 H.P., \$139.65; 11 H.P., \$219.90; 16 H.P., \$298.80;
22 H.P., \$399.65; Portable Engines Proportionally Low.

Direct From Factory to User

WITTE engines, Stationary, Portable, Skid-
ded and Sawrig styles, have set the quality
standard for 27 years. Better today than ever.

Castings of semi-steel, detachable cylinders,
vertical valves, four-ring pistons, automobile
ignition, variable speed, and other merits, with-
out which no engine can now be high-grade.

60 Days' Free Trial; 5-Year Guaranty

No need to pay double price for any good engine, or
to take an out-of-date, poor, or doubtful one for any
kind of a price. Don't risk any untried, newfangled
devices with highfalutin' names. Let me show you

How To Judge Engines

My New Book shows the "inside" of engine selling
as well as of manufacturing. Tells you how to be safe
in your engine selection, even if you don't pick a
WITTE. Send me just your address, for one of these
fine books by return mail.

Ed. H. Witte, Witte Iron Works Co.
1939 Oakland Ave., Kansas City, Mo.

INCREASE Your SALES

... By a Liberal Distribution of Our Booklet ...

THE USE OF HONEY IN COOKING

The last edition is ready for distribution, and may be
had in quantities at reasonable rates. The back cover
page affords space for a display advertisement. As this
booklet contains no advertising whatever, it can be
employed with telling effect. Better order your supply
early. Sample and prices in quantities on application.

Fifty-eight pages; one hundred and twenty-two valu-
able recipes in which honey is used. Just the book for
every household. A two-cent stamp will bring a copy.

Address the Publishers

THE A. I. ROOT COMPANY, MEDINA, OHIO

Beeswax Wanted

We offer for average clean beeswax 30 cts. per pound in cash, or 32 cts. in trade, delivered at San Antonio. If you have any good wax ready for the market, ship it to us, mailing shipping-receipt together with letter stating gross and net weight. To avoid any possible delay be sure and label your shipment so that we may identify same when received.

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DON'T FORGET that this company—AND NO OTHER—carries the STANDARD CONTINENTAL CANS. They are the right size; they won't leak; the ears are crimped into the top of the cans so they won't come off. BE SURE THAT YOUR CANS ARE THIS KIND, then you will know that your honey is going to reach its destination just like it leaves you.

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The Old Original 1853 Edition of Langstroth Reprinted Now Ready for Distribution

One of the Most Charmingly Written and Entertaining Books that was Ever Published

It so stirred A. I. Root in the early days that he wrote: "What a gold mine that book seemed to me! . . . Never was romance so enticing—not even Robinson Crusoe; and, best of all, right at my own home I could live out and verify all the wonderful things told therein."

Here is what Others say:

This will preserve the original for future generations.
G. M. DOOLITTLE.

Marietta, N. Y., April 16.

I am much pleased with the reprint which has come to hand.

Amherst, Mass., April 15.

B. N. GATES.

It is very interesting, not only from a sentimental but from a practical standpoint.

Guelph, Can., April 21.

MORLEY PETTIT.

The dear old man was one of God's very own; and to have this reminder of him on my bookshelf will give me much pleasure.

A. J. COOK,

State Commissioner of Horticulture.

Sacramento, Cal., April 18.

It seems good to read again this charming work. It must ever remain to the American beekeeper a classic, both instructive and fascinating.

Middlebury, Vt., April 15.

J. E. ORANE.

It is well to have Langstroth reprinted; and if all would read it, many would be saved from going over well-thrashed straw. I have several of the early editions, and am glad to add this to them.

ARTHUR C. MILLER.

Providence, R. I., April 20.

I have a copy of the reprint of the 1853 Langstroth. I have long admired the writings of Langstroth, and had read his original edition with great interest. It is especially interesting in that he discusses some of the points that are annually "discovered" by others who are unfamiliar with the literature on bees. I feel that it might benefit American beekeepers to become familiar with this book, and trust that it will have a wide distribution. The book is a classic, and should be known to all good beekeepers.

E. F. PHILLIPS.

Washington, D. C., April 16.

I am much pleased to get the reprint of Langstroth, and I thank you heartily for the same. I have not yet had a chance to look it through, but did look into it enough to recognise the dear old book. It was the very first thing I ever read on bees, and I read it through the first night—the night of the day I captured my first swarm. At least I read it till I dared not sit up any longer, lest my father arrive on the scene with a slipper. I did not dare look at the clock when I finally did go to bed. Yes, I got the fever bad.

Norwichtown, Ct., April 80. ALLEN LATHEAM.

"Entered according to Act of Congress in the year 1853, by L. L. Langstroth." Entered at the same time, without any act of Congress, by means of the book containing the aforesaid legend and the hive which accompanied it, a flood of light upon the dense darkness that had from the foundation of the world enshrouded the secret and mysterious doings of the little busy bee within its closed domicile.

That divides the history of beekeeping into two distinct periods—the long ages before 1853, and the little span of threescore years since then. The rapidly diminishing few who have lived in both periods are in best position to appreciate the immense difference in the two. As we scan again the pages of the old—and ever new—book, "Langstroth on the Hive and the Honey-bee," how memories arise of "the grand old man" with the inventive brain and loving heart, and with the gentle voice we loved so well to hear! What a blessing that the same man who could make such a revolutionary invention could also write so beautifully! Whatever other books the beekeeper may or may not have, he is likely always to cherish the one classic from the graceful pen of the beloved Langstroth.

Marengo, Ill.

C. C. MILLER.

While some of our readers may, perhaps, feel that this work would be out of date, the fact is,

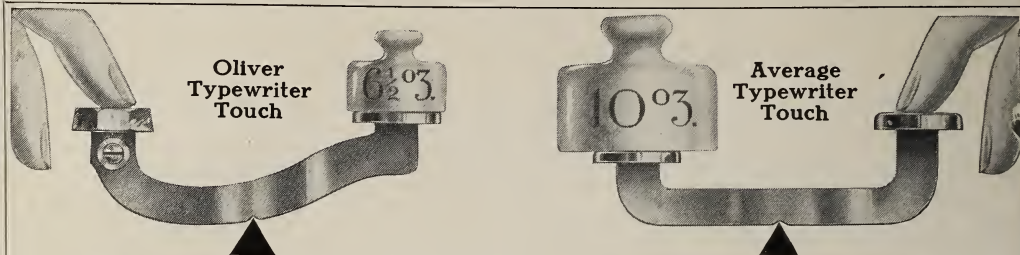
FATHER LANGSTROTH WAS 60 YEARS AHEAD OF HIS TIME.

So much so that he revolutionized beekeeping throughout the world.

The book that helped to bring about this remarkable revolution is well worth reading to-day. It is full of valuable tricks of the trade.

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The A. I. Root Company, Medina, Ohio



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